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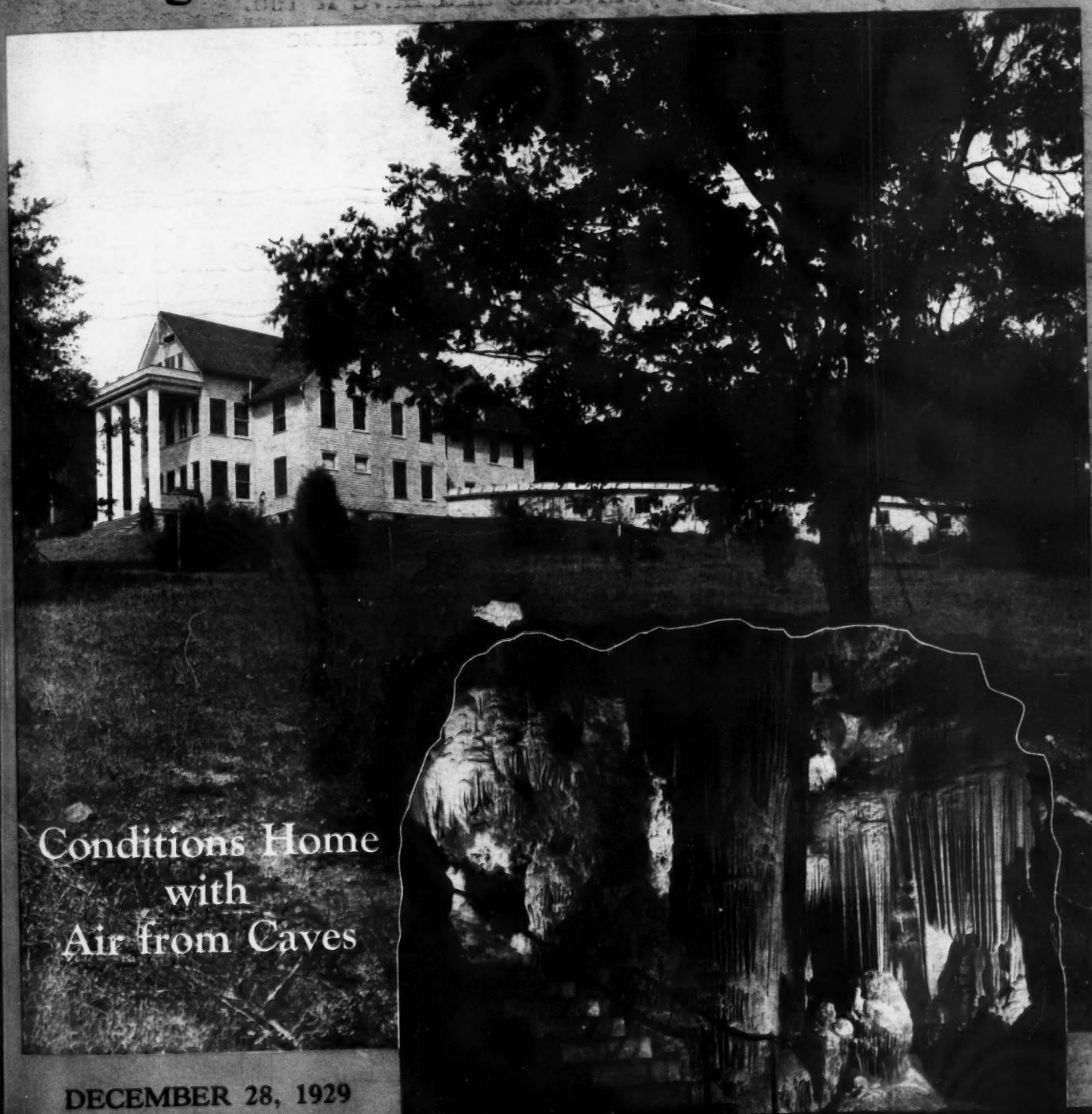
DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising



Conditions Home with Air from Caves

DECEMBER 28, 1929

KEWANEE

Water Heating GARBAGE BURNERS

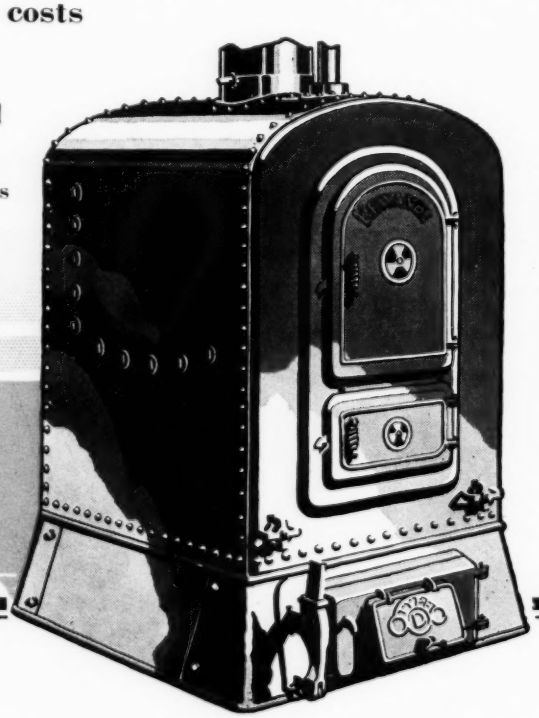
Kewanee Garbage Burners disprove that old assertion that "you can't eat your cake and have it too." For *after* the food is eaten the garbage can be used as fuel to heat water.

Save fuel --- and also dispose of garbage and rubbish in the only sanitary way.

Hot Water is as necessary as Heat

Built of steel (riveted) they will *last as long as the buildings* they serve, providing an abundant supply of hot water, without added costs for repairs.

KEWANEE BOILER CORPORATION
division of
American Radiator and Standard Sanitary Corporation
Kewanee Illinois
Branches in 40 Principal Cities



In sizes and styles to provide hot water for buildings of any size and every type.

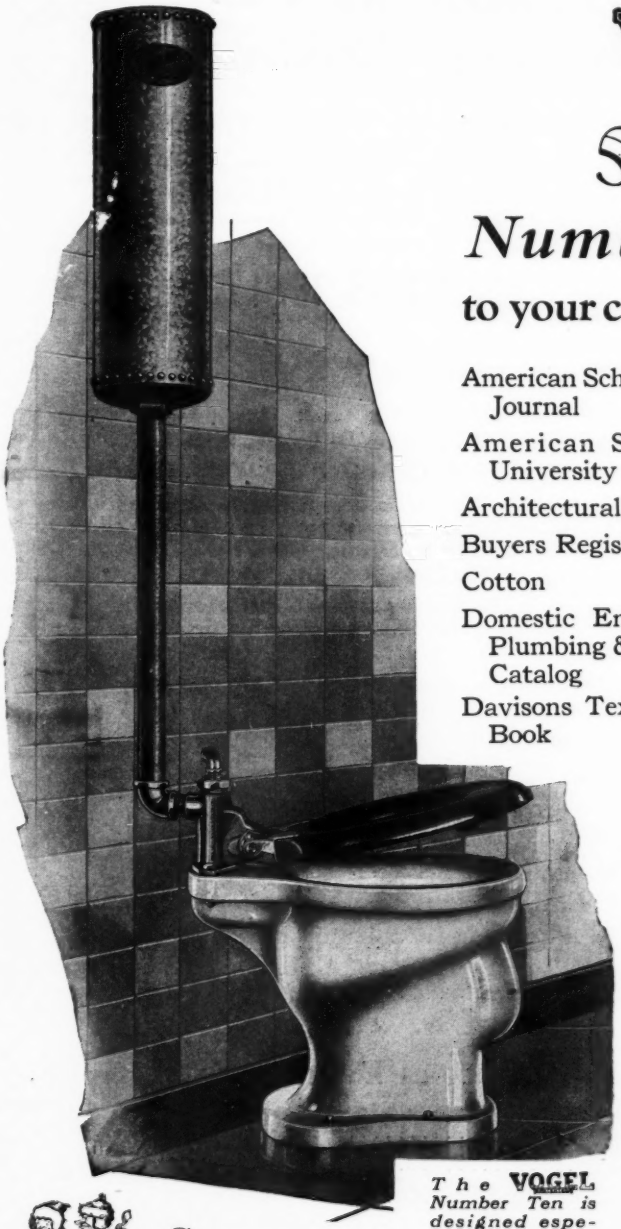
Here are the publications which we will use in 1930 to sell the—

VOGEL PATENTED

SELFLUSH

Number Ten Closet

to your customers . . Work with us



American School Board Journal
American School & University
Architectural Forum
Buyers Register
Cotton
Domestic Engineering Plumbing & Heating Catalog
Davisons Textile Blue Book
Ecclesiastical Review
McRae's Blue Book
Progressive Labor World
Southern Textile Bulletin
Sweet's Architectural Catalog
Textile World
Trades Union News
Wholesaler & Salesman

In addition, big space will be used in Plumbers Trade Journal and Domestic Engineering to keep the trade advised of our plans and developments.

Behind all this is a direct-by-mail campaign totaling several million pieces. Folders, stickers and blotters are available, imprinted with your name and address.

See inside back page for COLDIE and FROSTIE—the VOGEL Cold-Test Twins.

The VOGEL Number Ten is designed especially for plants, factories, schools and institutions of all kinds. A tremendous market which we are helping you to sell.

JOSEPH A. VOGEL CO.
Wilmington, Del.
St. Louis, Mo.

·· VOGEL PATENTED *Products* ··

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

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Editorial Staff

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L. W. BRITTON, G. R. STEARNS,
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WOLVERINE

Master Plumbers throughout the country gladly assure their customers of the lasting and satisfactory performance of Wolverine Faucets. This is a natural result of careful and skillful manufacture.

The Wolverine Brass Works insist that each manufacturing operation build into Wolverine Faucets, the quality that means Dependability. There is a complete line of Wolverine Faucets for every purpose, whether for open or concealed work in chromium plate or nickel, china or metal handles.

We Sell the Retail Plumbing Trade Exclusively

WOLVERINE BRASS WORKS

GRAND RAPIDS (WB) MICHIGAN

DEPEND'ABILITY --- MOULDED INTO E'A'CH·WB·F'A'UCET

"Domestic Engineering" is your magazine, written and published for you. Don't neglect it.

Between Ourselves

"I always look for the Woman's Page and enjoy every word."—Mrs. M. Mesnard, Pres., Mich. Aux.

Natural resources and natural phenomena have been put to a great many strange and novel uses. And, of course, it is this very adaptation of natural resources that has brought man to the high state of civilization which he believes himself to have attained.

Your Editor

THE particular harnessing of natural phenomena to which the front cover of this issue refers, is perhaps new to you. Admittedly it is an adroit employment of a desirable element. You will find further explanation of this matter in the story about air conditioning a house through utilization of the healthful air from the famous Luray Caverns of Luray, Va. These caverns, which have long been a notable scenic Mecca for tourists, have also been used for a number of years to provide ventilation for a large home nearby. The story is excellently illustrated.

THE first feature in the PLUMBING & MERCHANDISING section in this issue discusses the reasons why the plumbing and heating contractor should handle oil burners. It is a demonstration, in terms of actual experience, of the sound selling tactics employed by a firm in this field. You will find that it contains many helpful suggestions, the efficacy of which has been proven. The second article in the merchandising section should not be overlooked, either. Its title is "Moulding Public Opinion," and it takes up some highly important marketing problems, which concern every retail merchant. And the retailer who does the best job of moulding public opinion is the one who will reap the greatest benefit.

"A COKE BURNING BOILER" is the title of an article by A. H. Ebberle which describes the use of coke as a fuel, the special means for its combustion, and a particular installation showing its actual use. Five years ago very little coke entered the domestic fuel market and only a small percentage of a coke plant's production entered this market. However, during the last five years, as the value of using good coke for domestic heating became more popularly known, many new plants were built, and the production of domestic coke increased. Good coke possesses the outstanding quality of producing very little ash and yet having a very high heating value, factors that should recommend the installation of a coke burning boiler.

THE following is one of the many encouraging letters received from our subscribers: "If every heating contractor would know the value of a book of this sort, I don't believe he would do without it." William Tomino, 20 South 8th Street, Easton, Pa.

WE ARE all aware that the little things are frequently the most important, basically, but that does not prevent our continuing to look down upon the small and apparently insignificant. No one really appreciates pipe fittings, for instance, as long as there are plenty on hand, but they become a factor of immense import when the right size is not at hand. Harold L. Alt has given the subject considerable attention in his series of articles devoted to heating devices and their uses. In this issue his article is entitled "Steam Fittings and Accessories," which you will find worthy of your time.

THE second of the two articles on water softening by Ray Riley and V. F. Lamela appears in this number under the title, "Softening Water by the Zeolite Method." If you have already read the first one you will be sure to want to read the second, but if you did not read the first one, we advise you to read the one in this issue. The field of water softening provides a potentially valuable source of business for the merchant plumber who is ready to take advantage of it.

THE January 11, 1930, issue will be our annual number, although we do not propose making any great stir about it. We do, however, plan to celebrate, in a mild way, our fortieth anniversary. DOMESTIC ENGINEERING began its interesting career in October of 1889 as a pretty slim volume when compared with its present commendable avoirdupois. And its content, too, as of that time, seems very quaint and odd to us now. We are reproducing in the next issue several specimen pages from copies of forty years ago, showing samples of the advertising and of the plumbing and heating equipment of that day.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe

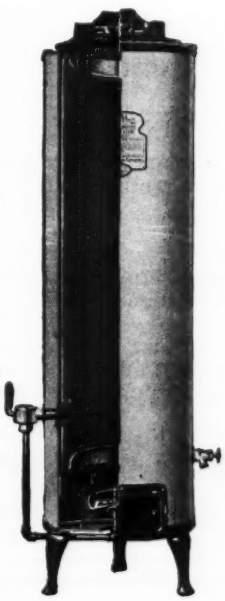
The Life of Copper
and
The Strength of Steel
are combined in the

EverHot
AUTOMATIC
WATER HEATER

with Steel-Clad Pure Copper Boiler!

The EverHot offers the only automatic storage water heater with Steel-Clad Copper Boiler. This boiler is unique. It really comprises a copper boiler inside of a steel boiler. All of the surface exposed to the water is of copper.

It is superior to an all-copper boiler in which it is customary to use zinc alloys to give it tensile strength. Alloys of zinc and copper will not withstand the action of the water found in many sections. The copper used in EverHot Heaters is PURE copper—not an alloy. Experience has proven that only PURE copper will withstand all water conditions.

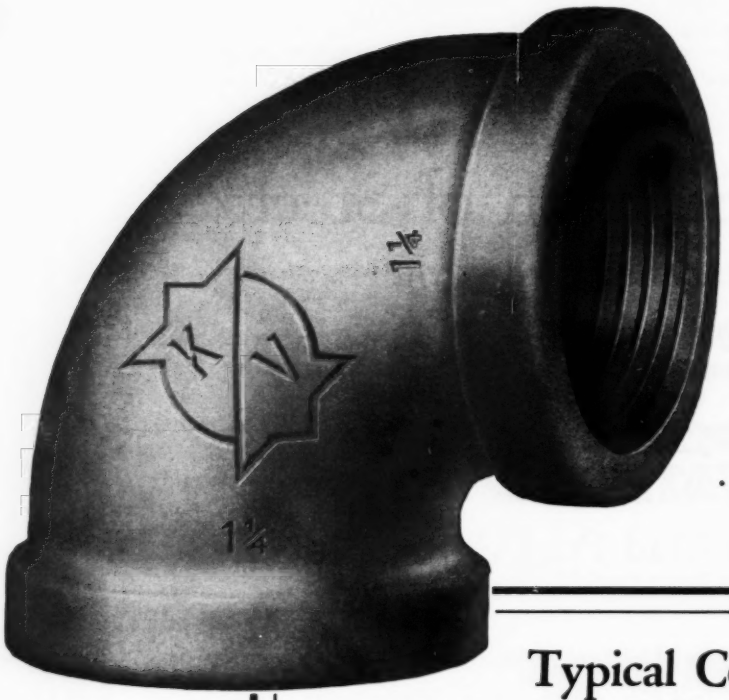


At one time the market for such a heater was limited to certain sections, but now, with the increasing demand for the finest in water heating equipment and the installation of brass and copper water piping, the market for this heater is broadened to the extent that every territory offers great possibilities.

WRITE FOR FOLDERS, PRICES, ETC.

EverHot Heater Company

5211 Wesson Avenue Detroit, Michigan



What plumbers say about KENNEDY Malleable Iron Pipe Fittings

Typical Comments from users of Kennedy Products

"YOUR fittings stand more tightening than any other fitting I have ever tried."

"Your fittings prove to be well galvanized, as well as very good material and well designed."

"We find your fittings perfect and easy to enter or connect, with good tapping. Machine work is all that can be desired."

"I find your fittings to be A-1. Threads are tapped straight and fittings are well proportioned."

"I find your fittings well proportioned; full water-way; and well finished."

"Have used your fittings for some time and they have proved quite satisfactory. The tapping runs true both as to size and direction. They are light yet strong."

"Both in finish and threads we find your fittings about the best we ever looked into, so say our employees. We agreed with them."

"With Kennedys, no more leaks from fittings due to splitting under wrench pressure."

"Have always found your fittings to hold tight and stand up under test."

"Your fittings are O.K. and will stop my troubles with crooked tappings."

Send for the Kennedy Catalog

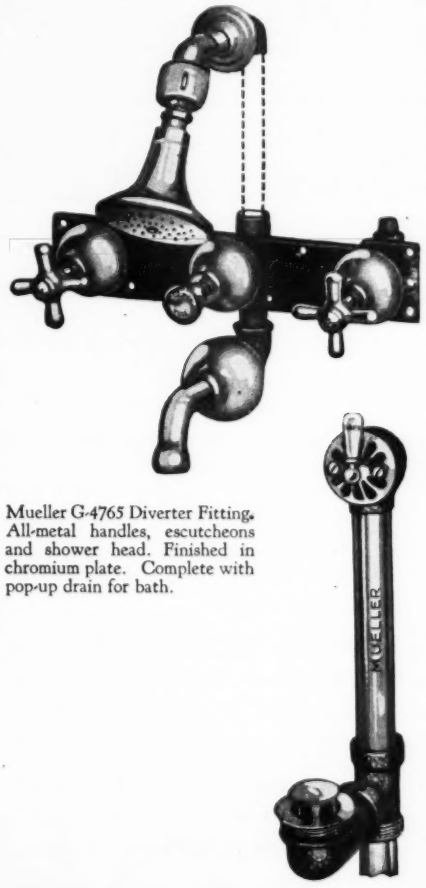
THE KENNEDY VALVE MFG. CO., ELMIRA, N.Y.

Branches in Principal Cities

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

This Mueller fitting is popular on hotel and apartment installations



Mueller G-4765 Diverter Fitting. All-metal handles, escutcheons and shower head. Finished in chromium plate. Complete with pop-up drain for bath.

MUELLER Diverter Fitting G-4765 offers two advantages that have made it a popular seller with master plumbers everywhere—especially on hotel and apartment installations.

First, the Automatic Diverter Valve eliminates the possibility of an unexpected shower for anyone who is not familiar with the operation of the fitting. After side or control valves have been shut off, flow is automatically diverted to the tub when the water is turned on again. Second, the one-inch spout connection is of ample size to permit water to enter the tub without splashing and roaring.

This Mueller Fitting has additional features which are interesting both from your point of view and from that of your customers. And, of course, Mueller quality and workmanship guarantee long, trouble-free service. We will send descriptive literature promptly upon request.

MUELLER CO. (Established 1857), Decatur, Illinois; *Branches:* New York, Dallas, San Francisco, Los Angeles; *Canadian Factory:* MUELLER, Limited, Sarnia.

MUELLER

PLUMBING BRONZE AND VITREOUS WARE

famous dumb guys of history

Here's the ambulance at the Schnozzle house again. Wonder what Mrs. Schnozzle gave Mr. Schnozzle this time. Last time it was a hairpin cure in his backbone.

Mrs. Schnozzle is a nice girl. She merely resents her husband's lack of consideration. And when she resents it she reaches for the nearest window sash.

The whole trouble is that Mrs. Schnozzle is sick to death of trying to get along with a Spanish-American war toilet. It has very peculiar ways. And, like most toilets being built even today, it has a trapway no bigger than a golf ball.

Mrs. Schnozzle wants an Improved Madera. She knows it has a large trapway and powerful, yet quiet flushing*. She has told Mr. Schnozzle so, but he only says "Humph!" He is not only tight, but stubborn. So Mrs. S. reaches for the window sash.

There goes the ambulance. Happy ride, Mr. Schnozzle.

*and safely passes sanitary pads

In addition to the Improved Madera at $85, America's finest, most modern toilet, Maddock also offers the Madbrook at $50 and the Maderno at $35. The Madera and Madbrook have split-proof white seats. All have Durock bodies, and large bowls and seats. All are unusual values for the money, and the plumber who carries the Madera at $85, as well as the Madbrook and Maderno, is able to compete for all the business in his community with modern elongated closets.

THOMAS MADDOCK'S SONS POTTERY
Division of Standard Sanitary Mfg. Co.
TRENTON, N. J.

THE GREATEST GUARANTEE OF PROFITS *and* TURNOVER

ever written on

Hot Water Service

is being offered you by the last person in the world you'd think of.

Not by us. Not by any other manufacturer of a Side Arm Automatic Heater.

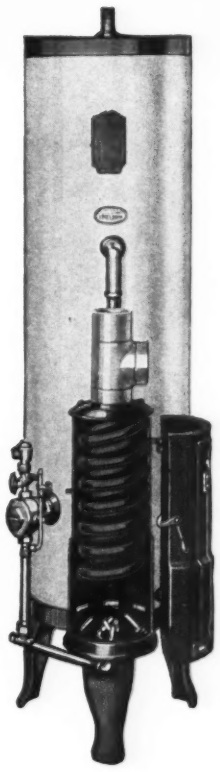
Not by any manufacturer at all!

But by the home owners, apartment owners, store owners right in your own trading area.

The ones that have installed, and are installing Side Arm Automatics. And every new Side Arm Heater you sell strengthens your own business structure just that much more.

These owners are underwriting your future not only on the sales of Side Arm Type Heaters, but on everything else you sell that gives the same high type service and satisfaction.

That's why it pays plumbers—pays them handsomely—to put their very best efforts behind the Side Arm Type. This type is capable—by its simple, shrewdly engineered design—of giving the utmost service, at the most economical cost. Clean, hot water, quick—anytime, all the time—for years.



No. 20SA

List Price $66 Complete

(SA means Side Arm and Self Action)

Among the many good Side Arm Types, one particular Heater has come to be known as an *outstanding leader*. It has many advanced features not found on other Heaters, and represents value in an exceptional way. If you're interested in taking the very fullest advantage of your opportunity in the growing demand for Side Arm Heaters, write TODAY for the complete Hotstream proposition.

The Hotstream Heater Co.

"Makers of Heaters That Heat"

Cleveland, Ohio

HOTSTREAM
AUTOMATIC STORAGE
HEATERS

4

Exclusive Features of "Vulcan Superior"

1. "Overhead" adjustment. The handle is on top, where it's easy to operate.
2. Reversible jaws. When the teeth wear, unscrew the bolts and turn the jaws over.
3. Larger capacity. Each vise takes pipe ½ inch larger than others of similar size.
4. Chrome-plated finish.

TWO SIZES

No. 11 for ⅛ to 2½ inches
No. 12 for ¼ to 4½ inches

Efficiency and Speed with the

"VULCAN SUPERIOR" VISE

Here is a new vise that is a worthy companion to the old "Vulcan" —the ORIGINAL chain pipe vise. Its design embodies new features that are patented and found only in Williams' "Vulcan Superior." Adjustment is ON TOP, providing fast and convenient operation. Jaws are REVERSIBLE — doubling the useful life of the tool. Made entirely of tough, wrought steel — no castings are tolerated. Genuine "Vulcan" chain. For convenient operation—rapid action —positive grip—long life, order "Vulcan Superior" today.

J. H. WILLIAMS & CO.
"The Drop-Forging People"
New York BUFFALO Chicago

WILLIAMS
SUPERIOR DROP-FORGED TOOLS

VULCAN SUPERIOR
CHAIN PIPE VISE

THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

A Letter from Harry G. Nye

Dec. 28, 1929.

To The Plumbers and Steamfitters of The U. S. A.

THE NEW LIGHTWEIGHT CHAMPION

Fellow Citizens:

Maybe you've heard that there's a new "LIGHTWEIGHT CHAMPION," and may be you thought his name was Battling Riley, and his father's name Confetti Ravioli, or something like that, as is so often the case.

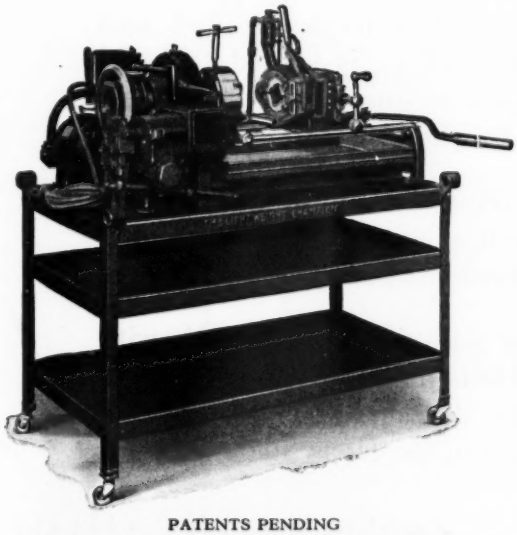
And perhaps you thought he came from Philadelphia, where all the fighters come from, just the same as all the actors come from New York whether they have ever been in New York or not.

Possibly you pictured a smallish gentleman with corrugated ears, one partly detached, a mashed nose, either mashed or boiled, and a mouth that looked like it had been kissed by a pile-driver.

Nothing of the kind. The new "LIGHTWEIGHT CHAMPION" was foaled -- or whatever it is that happens to a champion at a time like that -- right here at the Nye Tool & Machine Works in Chicago.

It is the New Nye No. 50 portable pipe machine, and it is the champion of all lightweight power pipe machines now on the market, or that ever were, or that ever will be.

It has a wallop that will cut and thread two inches of the darnedest, cussedest, meanest pipe in the world, and yet it will treat a half-inch brass pipe with kindness and consideration.



It is one of the few lightweight champions that ever saved any money; but it certainly does that for any shop that has one (or more) to send out on a job.

How fast will it cut pipe? How fast will any other portable pipe machine cut it? Well, faster than that. It has the power, the speed and the mechanical features to do it.

When these lightweight machines came out, you knew right away who would make the best one, of course. If you're going to get one, and of course you are, why not get the champion?

Sincerely yours,

Harry G. Nye

PATENTS PENDING

"THE LIGHTWEIGHT CHAMPION"

Power Pipe Threading Machine
Threads—Cuts Off and Reams

Capacity ⅛ to 2 Inches

OTHERWISE KNOWN AS

THE NYE TOOL & MACHINE WORKS

4120-30 Fullerton Avenue :: Chicago, Ill.

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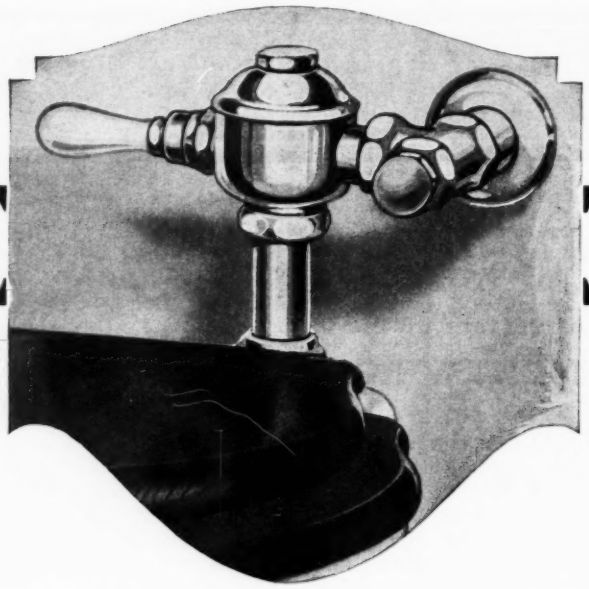
THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE



Hundreds of Plumbers Helped Perfect It

When Haas started to build its flush valve a quarter of a century ago, it consulted plumbers everywhere about its operation.

Weaknesses and defects were quickly detected and as quickly the work of correcting them was started.

Haas has never worked alone with its plumbing equipment. Factory tests and inspections while rigid in the extreme are never sufficient—

Haas *must* know its product in service, hence Haas' close contact with plumbers all the time.

Every effort is made to discover the conditions to be met and then no effort is spared to build plumbing equipment which meets the toughest demands of service.

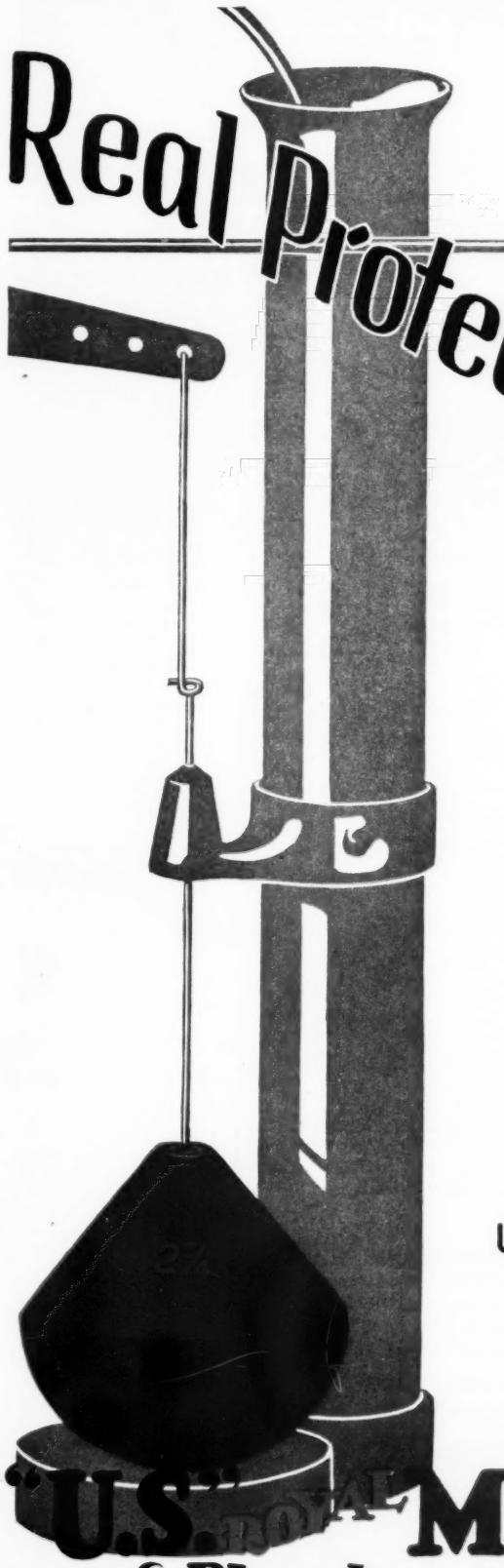
The Haas Flush Valve is an outstanding example of Haas perfection-built products.

Your jobber can supply you with all Haas material. Ask him—or write direct for the complete details of the Haas line.

The PHILIP HAAS CO., Inc. - DAYTON, OHIO

Haas

Real Protection ALWAYS



Not only "U. S." Tank Balls and Floats, but all "U. S." Royal Maroon Line products will give both you and your customer real protection always.

For you it means an exclusive product. You are the only one who can give the high "U.S." quality to your customer. The "U. S." Plumbers' Specialties are distributed ONLY through selected supply houses.

Also it means the elimination of free service calls, bill adjustments and kicks. Your customer will be satisfied by the "U. S." quality and performance.

Investigate the "U. S." Royal Maroon Line of Plumbers' Specialties. See your jobber today and ask for the "U. S." Plumbers' Catalog, or write us direct.

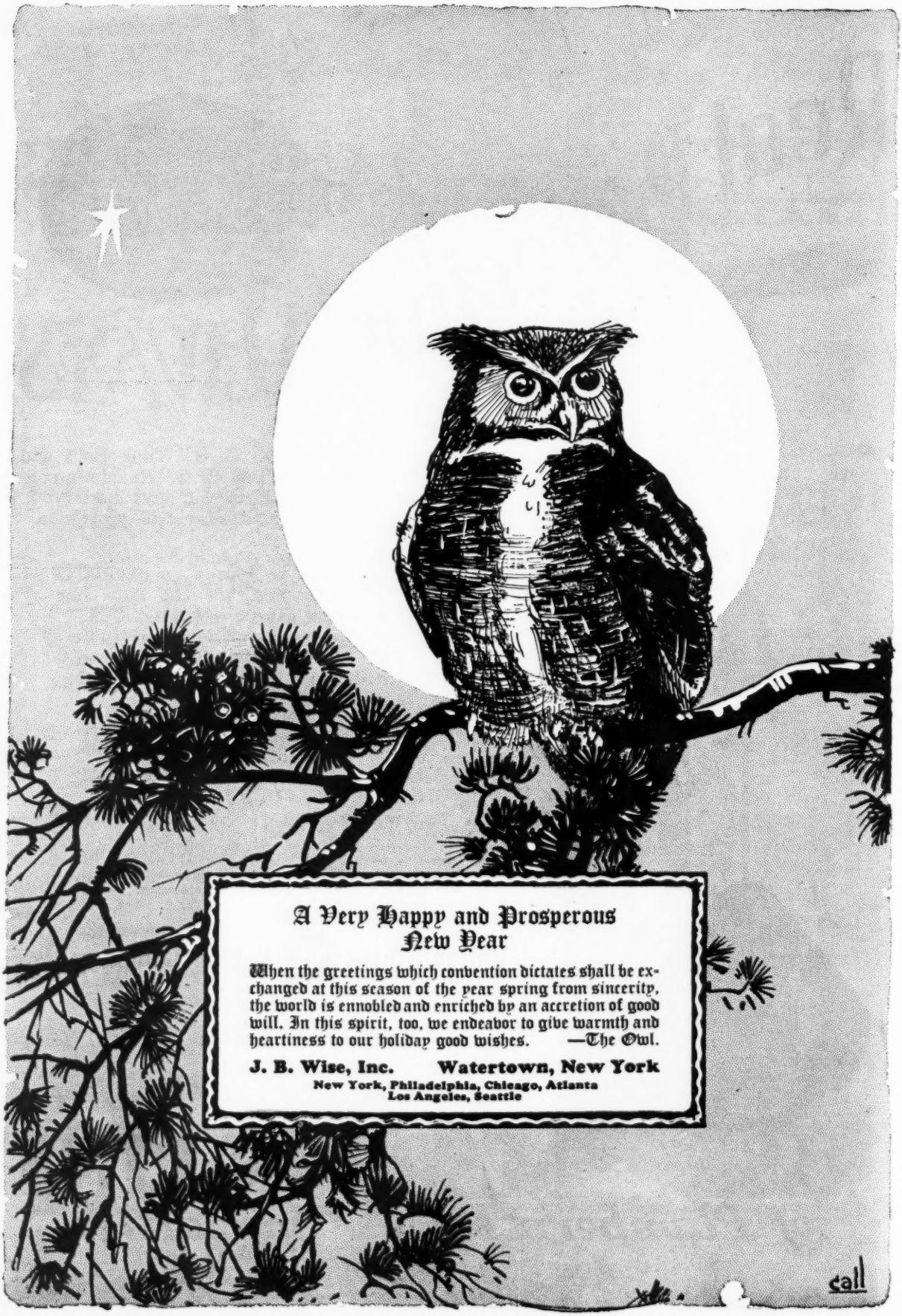
United States Rubber Company

TRADE MARK

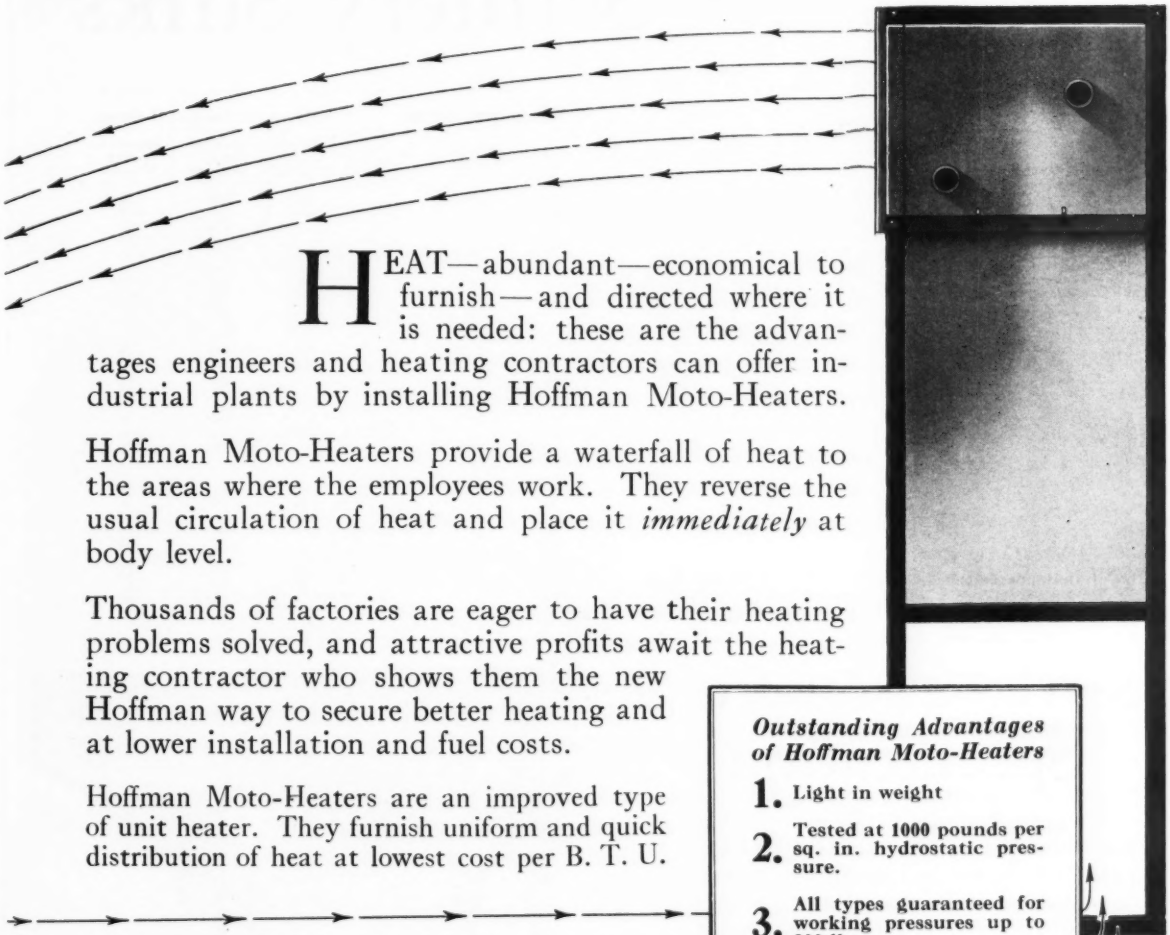
Executive Offices:
1790 Broadway, New York City

"U.S." ROYAL MAROON LINE

of Plumbers' Rubber Specialties


A Very Happy and Prosperous
New Year
When the greetings which convention dictates shall be exchanged at this season of the year spring from sincerity, the world is ennobled and enriched by an accretion of good will. In this spirit, too, we endeavor to give warmth and heartiness to our holiday good wishes. —The Owl.
J. B. Wise, Inc. Watertown, New York
New York, Philadelphia, Chicago, Atlanta
Los Angeles, Seattle
call

A Waterfall of Heat



HEAT—abundant—economical to furnish—and directed where it is needed: these are the advantages engineers and heating contractors can offer industrial plants by installing Hoffman Moto-Heaters.

Hoffman Moto-Heaters provide a waterfall of heat to the areas where the employees work. They reverse the usual circulation of heat and place it *immediately* at body level.

Thousands of factories are eager to have their heating problems solved, and attractive profits await the heating contractor who shows them the new Hoffman way to secure better heating and at lower installation and fuel costs.

Hoffman Moto-Heaters are an improved type of unit heater. They furnish uniform and quick distribution of heat at lowest cost per B. T. U. and insure dependable and trouble-proof service under all conditions—both normal and difficult.

Hoffman Moto-Heaters are made in suspended and floor mounted styles, as illustrated, in a complete range of sizes for all requirements. Write for catalogue and full information.

Outstanding Advantages of Hoffman Moto-Heaters

1. **Light in weight**
2. **Tested at 1000 pounds per sq. in. hydrostatic pressure.**
3. **All types guaranteed for working pressures up to 200 lbs.**
4. **Permanently steam tight joints. Copper tubes fused to welded steel header—no expanded joints.**
5. **Smooth fins, reducing collection of dirt.**
6. **Fins embedded in copper tubing, insuring efficient heat transfer.**
7. **Low in first cost and installation cost.**

Have You Received A Copy of the New Hoffman 60 Page Catalogue?

It describes the construction, operation and installation of Hoffman Venting Valves, "Controlled Heat," Moto-Heaters and Hoffman-Economy Pumps. Catalogue will gladly be sent upon request.

Hoffman Specialty Company, Inc.
Dept. X-18,
Waterbury, Conn.

Please send your new 60 page catalogue.

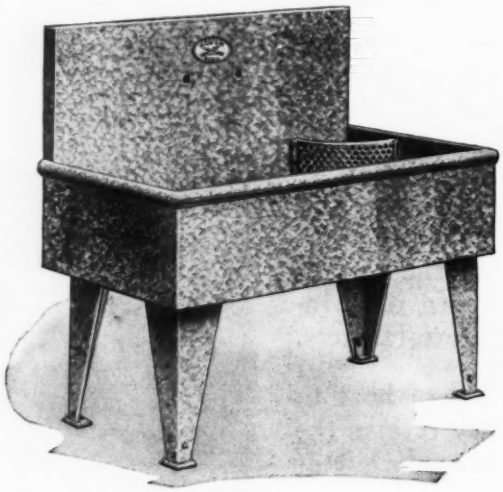
Name.....

Street.....

City..... State.....

By.....

KOVEN Scullery Sinks

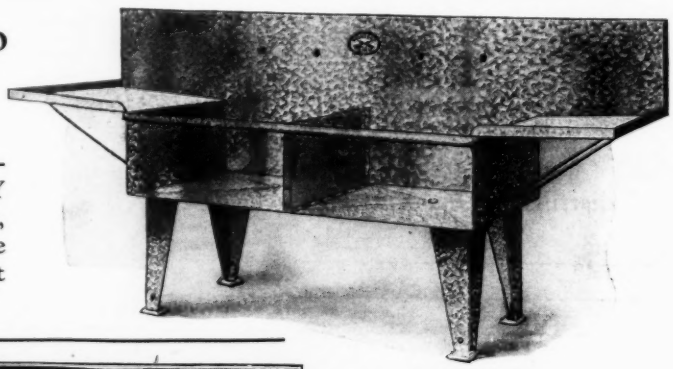


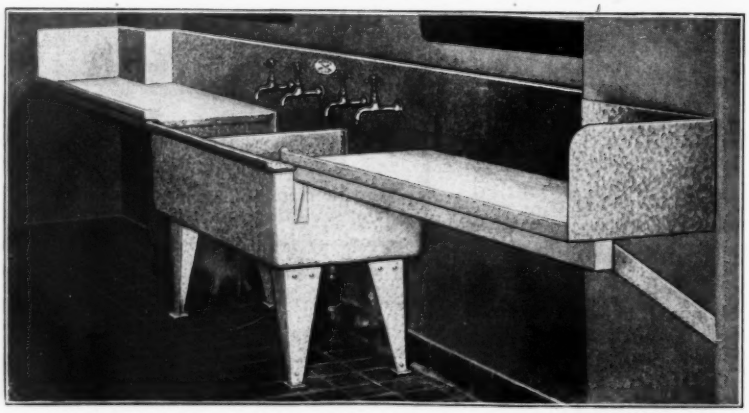
Drainboards can be furnished 24 or 30 inches long with three (3) sides flanged or with back to match sink.

STOCK SIZES			14 Gauge	12 Gauge	10 Gauge
Length Inches	Width Inches	Depth Inches	Approximate Weight	Approximate Weight	Approximate Weight
24	24	12	94	105	126
36	24	12	101	130	159
48	24	12	119	155	191
60	24	12	.....	180	224
72	24	12	.....	.....	256
36	30	12	110	143	176
48	30	12	129	170	211
60	30	12	.....	198	247
24	24	16	91	117	143
36	24	16	112	145	179
48	24	16	132	173	216
60	24	16	.....	202	252
72	24	16	.....	.....	288
36	30	16	122	160	198
48	30	16	144	190	237
60	30	16	.....	221	276
72	30	16	.....	.....	315
24	24	20	106	129	159
36	24	20	128	160	199
48	24	20	151	192	239
60	24	20	.....	223	279
72	24	20	.....	.....	320
36	30	20	133	176	219
48	30	20	157	209	262
60	30	20	.....	242	305
72	30	20	.....	.....	348

KOVEN Sinks Made to Specification

We are especially equipped to fabricate sinks of STEEL OR ALLOY METALS, for hospitals, cafeterias, and other large installations where limitations of size and space must be taken into consideration.





At the Left

A typical KOVEN installation, showing how drain boards, etc., can be designed to fit YOUR special requirements.

Write Us

for our latest circular on Scullery Sinks.

No cost or obligation.

L. O. Koven & Brother, Inc.

154 Ogden Ave., Jersey City, N. J.

A New Line!

Ohio Brass No. 22 Line

---150 lbs. Working Pressure

HERE is another source of profit for the plumbing and heating contractor who is wide-awake to the possibilities of earning an "extra profit from the make-up". The addition of the No. 22 Line—an O-B Flexitite Disc Gate Valve for 150 pounds working pressure—has supplied a want which was created for a higher pressure valve by the ever-growing popularity of the Flexitite Disc Gate Valve.

It really is not surprising that such a demand should have arisen. When one considers that the O-B Flexitite Disc Gate Valves render service equal to any other gate valves with the additional features that they shut off *tight* on steam, water, gas, oil, gasoline and vacuum systems, and that 15% of their cost can be saved in make-up time—well, what could the answer be?

Have *you* ever tried O-B valves? Do you *know* that they will not be an improvement over the valves you are now using? Could you possibly lose anything by giving them a *trial?*

Put this note in your "Want Book"; "I am willing to try anything once—get some O-B valves for trial".

The FLEXITITE Disc

The Flexitite Disc is used throughout the Ohio Brass lines of gate valves. It combines the advantages of a solid wedge disc with the adaptability of the two-piece disc. Two solid posts join the two faces to give rigidity to the disc proper, while a sawed slot around the circumference of the disc gives a slight flexibility to the faces. This assures full contact at all points with the seat when the valve is closed.

Ohio Brass Company
Mansfield, Ohio
1159V

Ohio Brass Co.

NEW YORK PITTSBURGH PHILADELPHIA CHICAGO ATLANTA BOSTON CLEVELAND ST. LOUIS LOS ANGELES WM. P. HORN CO. SAN FRANCISCO SEATTLE

PORCELAIN INSULATORS LINE MATERIALS RAIL BONDS CAR EQUIPMENT MINING MATERIALS VALVES

no more *clogged showers!*

no more *dribbling streams!*

WHEN you install the new Speakman Self-Cleaning Anystream head your customer owes you a vote of thanks. Never again will his shower head clog, stop up and dribble. He can use the head every day for years and never need to take it apart for cleaning.

This remarkable shower head is head and shoulders above any other. A single turn of a handle flushes out scale and dirt, or adjusts the streams as you want them—needle shower, normal spray, or heavy, single stream. It gives the user many kinds of shower in one.

Finely-made, accurately-machined, superbly-finished. Clothed in brilliant tarnish-proof Speakman chromium plate, which experts claim is the finest chromium plating being done today. Made to last and last and last.

Because this amazing head fits both Speakman Showers and any other make of shower it is both a new installation and a replacement item. Ask your jobber.

K-3395
Patent
Applied for

. . .

SPEAKMAN COMPANY
Wilmington, Del.

A turn of the lever sluices all sediment away.

Another turn of the lever gives a normal spray.

Or you can adjust to a veritable stinging needle shower.

SPEAKMAN *Showers & Fixtures*

WELDED PIPING PAYS

The customer is satisfied because his piping system is installed quickly, economically and does not develop leaks.

Pipe can be quickly cut to length and shape on the job with our oxyacetylene cutting torch or cutting attachment for a welding torch, and then easily welded in place—a saving in time, labor and equipment.

There is no better oxyacetylene apparatus than Airco-Davis-Bournonville and Airco Oxygen and Acetylene are unexcelled for cutting and making welds as strong as the pipe itself. Ask any Airco Office listed below.

AIR REDUCTION SALES COMPANY

HOME OFFICE: 342 MADISON AVE., NEW YORK

Baltimore	Buffalo	Dayton	Louisville	Philadelphia	Seattle
Bettendorf, Ia.	Charlotte, N. C.	Detroit	Milwaukee	Pittsburgh	St. Louis
Birmingham	Chicago	Emeryville, Cal.	Minneapolis	Portland, Ore.	Wheeling
Boston	Cleveland	Jersey City	New Orleans	Richmond	90 Plants
		Los Angeles	Oklahoma City		

AIRCO — DAVIS BOURNONVILLE

Airco Oxygen—Airco Acetylene—Airco-Davis-Bournonville Welding and Cutting Apparatus—Supplies—Airco National Carbide

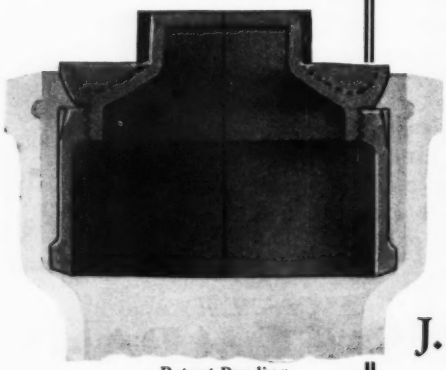
FOR 1930

THE ZURN COMPLETE LINE

New factories—new facilities for service and still higher quality on the complete Sani-teed Line. That is what we offer you for 1930. And don't forget, if you take advantage of this offer you have only one source of supply to hold responsible for the kind of service you in turn give your customers.

Our complete catalogs should be in your files. They will save you time when ordering and give you many helpful layout hints.

Send us your request for them today.



Patent Pending

SUPREMO

THE CAST IRON CLEAN OUT PLUG WITH THE LEAD SEAT

J. A. ZURN MFG. CO.

ERIE, PENNA.

Sales Offices in the following Cities:

Boston New York Philadelphia Pittsburgh
Toledo Chattanooga Chicago
Minneapolis Denver Dallas Los Angeles
Seattle San Juan, Porto Rico

SANI-TEED PLUMBING PRODUCTS

Patent Pending

"NIAGARA"

WASTE AND VENT FITTINGS

NEW THESE *oil-burning appliances are Great Sellers*

Dealers! Here is a Great Line of brand new oil-burning appliances. A Modern Range in colors that appeal to any woman. A Cabinet Heater with personality. A high-efficiency Furnace with Furblo positive air-circulation. They bring new business . . . quick turnover . . . steady sales . . . good profits. Revolutionary in principle, they are attractive, durable, easily installed and require practically no servicing.

No dirt in the home now! No Drudgery! The Piatt burner burns oil; has no wicks; no weights; no springs; no fragile parts; and requires no pressure or vacuum but gives a great heat on little fuel; burns with almost no attention.

Everybody wants the convenience and economy of oil-burning appliances and they can now get both. Backed by the Piatt sales building plan and these fine Piatt Appliances, any live dealer can step right into big sales and big profits. Mail the coupon for mechanical details and other interesting information.

MOTOR WHEEL CORPORATION
Heater Division
LANSING MICHIGAN

BURN OIL
SAVE TOIL

PIATT OIL BURNING APPLIANCES
HEATER DIVISION • • MOTOR WHEEL CORPORATION

Motor Wheel Corporation, Heater Division, LANSING, MICHIGAN

Send me at once, full information and profit-building plan on the Piatt Appliances. I am not obligating myself but will study the details carefully.

Name _____
(Please print or typewrite)

Street _____

City _____ *State* _____

My Business _____

Another Way Kohler Helps Plumbers Make More Money

The Duostrainer

This exclusive Kohler improvement makes the old-style open drain obsolete. You can get it on most Kohler sinks. Costs but little more and is a money-maker

"No, Ma'am, *only Kohler sinks have the Duostrainer*"

Every plumber wants to make more money. But that's easier said than done when the other fellow cuts his price to the bone and you think you have to meet him.

Well, why not try a little progressive modern salesmanship, on fixtures that sell because they are finer, more convenient, or more beautiful—and *not* because they are cheap!

For example, Kohler sinks equipped with the Duostrainer, the one sink improvement of the last twenty years. After you have once explained the Duostrainer to a woman, you won't have to worry about the competitor who sells ordinary sinks.

Show your customer that a Kohler Duostrainer sink *holds water* just like a lavatory bowl. Point out the advantage of the *removable* strainer cup. It is features like these that make easier, bigger, and more profitable sales.

Everywhere you look in the Kohler line of enameled ware, vitreous china, and brass, you find items that fit right into this progressive sort of selling. Keep your eye on Kohler quality and exclusive convenience features — *and make more money.*

New 72-Page Book in Color to give to your best prospects

Shows bathrooms, kitchens, laundries, color schemes, suggested retail prices. Send for a supply.

KOHLER CO., *Founded 1873,* Kohler, Wis. · *Shipping Point,* Sheboygan, Wis. · *Branches in Principal Cities*

KOHLER OF KOHLER

MEMBER PLUMBING & HEATING INDUSTRIES BUREAU T. E. B.

PLUMBING FIXTURES

LOOK FOR THE KOHLER TRADE MARK ON EACH FIXTURE

This is one of the new American items that is being installed in many of the nation's finest buildings. Ask your jobber about the complete American line.

No. 455—*2 inch*

American 2 Inch Connected Wastes and Overflows

Where you know the work *must* last

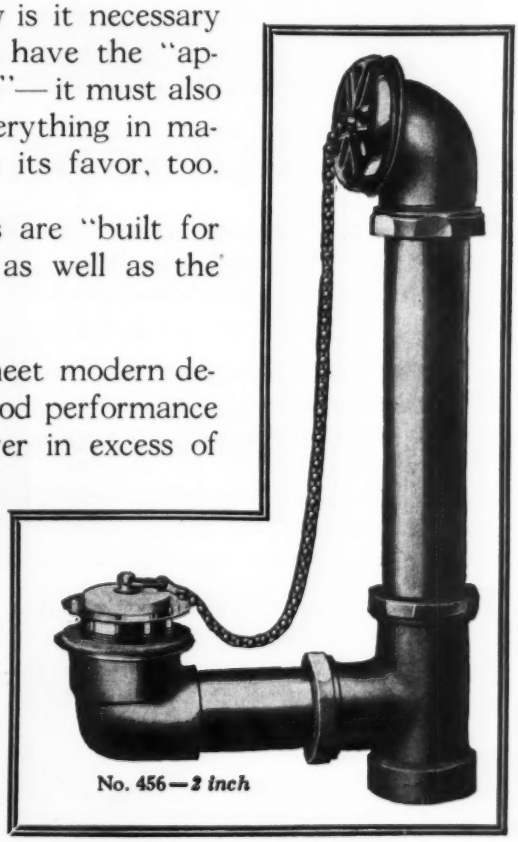
If plumbing brass goods was a thing that was bought new every month, it would be possible for you to install cheap brass goods and get away from service costs and customer complaints.

But brass goods selected today must be selected for the future, as well.

Not only is it necessary for it to have the "appearance"—it must also have everything in materials, construction and workmanship in its favor, too.

American Sanitary Mfg. Co. brass goods are "built for the future." That's true of the inside as well as the outside.

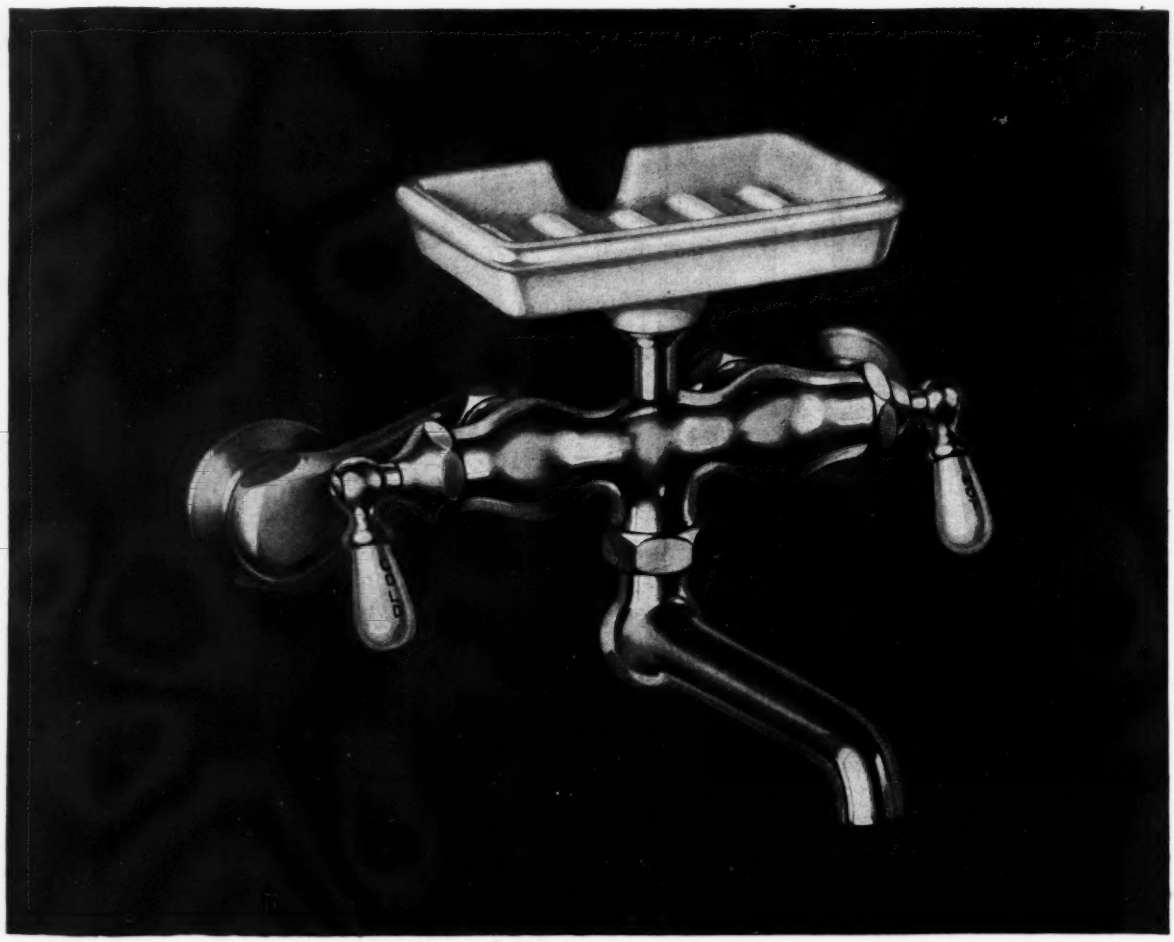
They are built in a variety of styles to meet modern demands for beauty. All, however, have good performance built into them *first* and, at a price never in excess of what you are asked to pay for inferior goods.



No. 456—*2 inch*

From your jobber.

American Sanitary Manufacturing Co.
Abingdon :: Illinois



New "Triumph" Combination Faucet

Many special features make the new Clow "Triumph" Combination Sink Faucet a fast and easy seller—a good "business-getter" for plumbers.

The side-operated handles sell easily to housewives . . . for they are controlled with far greater ease. Soap dish is large, self-drained, and can be removed for cleaning. Spout is long and swings easily to desired position.

PLATING

CLOW Brass Goods are available in our extra heavy Nickel Plate or our lustrous, enduring Chromium Plate.

Renewable seats furnished if desired. This new member of the "Triumph" line is easy to install. The arms can be adjusted to variations up to 8-inch center to center in the openings of the sink back. Write for further information on the Clow "Triumph" line—tested to the equal of 15 years' service.

JAMES B. CLOW & SONS, 201-299 N. TALMAN AVE., CHICAGO

Sales offices in principal cities

CLOW

PREFERRED FOR EXACTING PLUMBING SINCE 1878

Can a pipe wrench really give "Extra Service"?

"Extra service" sounds like more selling talk, more applesauce. What does it mean?

Translated into commoner terms, it means just this—a TRIMO pipe wrench is a hard tool to kill.

TRIMO

—*because* TRIMO is *all* steel

and the handle is *drop-forged* not cast, and heat treating has given it real toughness.

A broken TRIMO is a very rare occurrence.

—*because* TRIMO jaws are replaceable

when long wear has dulled the teeth, don't throw the wrench away BUT slip in a new insert or movable jaw; the wrench is like new.

Buying a TRIMO means buying *Extra Service.*

Made by Trimont Mfg. Co.

TRIMO Pipe Wrench

Roxbury (Boston) Mass.

Our Contribution
to the art of Heating & Ventilation

SIX YEARS AGO when the Herman Nelson light weight, compact, indestructible radiator was placed on the market, it was immediately accepted as the greatest advance in the art of Heating and Ventilation in a generation. It has made possible heating and ventilation dependability and performance hitherto unattainable.

The Herman Nelson Wedge Core Radiator is an exclusive feature of all Herman Nelson Heating and Ventilating Products and accounts for their unequaled performance.

HEATING · VENTILATING · COOLING · DRYING · CONDENSING

UNIVENT

for the ventilation of schools, hospitals, offices and other buildings presenting an acute ventilating problem.

HERMAN NELSON *Invisible* RADIATOR

... supersedes all previous radiators, radiator cabinets or enclosures. Occupies no room space and makes possible any desired decorative scheme or furniture arrangement. Indestructible in service.

THE HERMAN NELSON hiJet HEATER

It operates at steam pressures from 1 to 150 lbs., and offers the better and more economical way of diffusing heat in Factories, Railroad Shops, Roundhouses, Mills, Warehouses, Garages, Gymnasiums and Industrial Buildings.

Herman Nelson Radiator Sections
for Blast Heating and Cooling

Indestructible, operating at any steam pressure from 1 to 150 lbs., non-corrosive and leak-proof.

May be arranged in banks to solve any special problem of heating or cooling.

THE HERMAN NELSON CORPORATION · *Moline, Illinois*

Builders of Successful Heating and Ventilating Equipment for over 20 Years

Sales and Service

BELFAST, ME.	UTICA	SCRANTON	SAGINAW	CINCINNATI	DES MOINES	ST. LOUIS	DALLAS	DENVER	SEATTLE
BOSTON	BUFFALO	PITTSBURGH	DETROIT	TOLEDO	MILWAUKEE	BIRMINGHAM	OMAHA	SALT LAKE CITY	SAN FRANCISCO
PROVIDENCE	PHILADELPHIA	CHARLOTTE, N. C.	CLEVELAND	INDIANAPOLIS	GREEN BAY	ATLANTA	EMPORIA	SPOKANE	VANCOUVER
NEW YORK CITY	WASHINGTON, D. C.	GRAND RAPIDS	COLUMBUS	CHICAGO	MINNEAPOLIS	MEMPHIS	KANSAS CITY	PORTLAND	TORONTO
									WINNIPEG, MAN.

MONCO

STEEL HEATING BOILERS

for

COAL OR OIL BURNING

◎

FIRE TUBE BOILERS
COIL WATER HEATERS
COIL HEATING BOILERS

◎

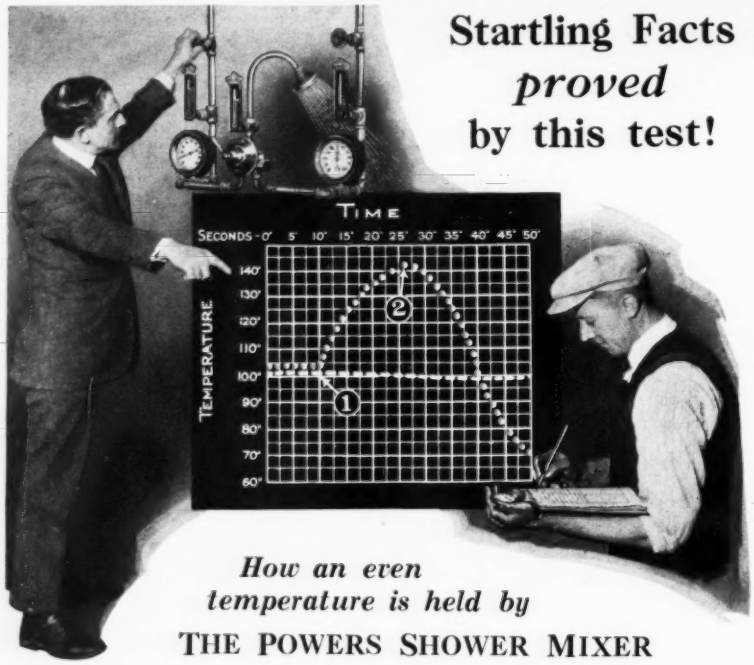
WRITE FOR COMPLETE
INFORMATION

MONITOR

BOILER COMPANY

1505 RACE STREET PHILADELPHIA, PA

MIXING · VALVES



Startling Facts *proved* by this test!

How an even temperature is held by

THE POWERS SHOWER MIXER

as compared with ordinary mixing valves

Conditions of the Test

Temperature of cold water is 55° F., hot water 170° F. Pressure on both lines is 50 lbs. Handle of Mixer is turned to "Warm" and temperature of water flowing from shower head is 100° F.

At Point 1—Cold water pressure is cut down to 10 lbs., hot water pressure is still 50 lbs.

Result—With hand valves and ordinary shower mixers, temperature rises about 40° in 15 seconds. See red line on chart. Bather under shower would get a "shot" of scalding hot water.

With a Powers Mixer, temperature of water remains constant at 100° F. See white line on chart.

At Point 2—Cold water pressure is restored to 50 lbs., hot water pressure is cut down to 10 lbs.

Result—With hand valves and ordinary mixers, temperature of water drops 70° in 25 seconds; bather under shower would get a "shot" of cool water here.

With a Powers Mixer, temperature of water remains constant at 100° F.

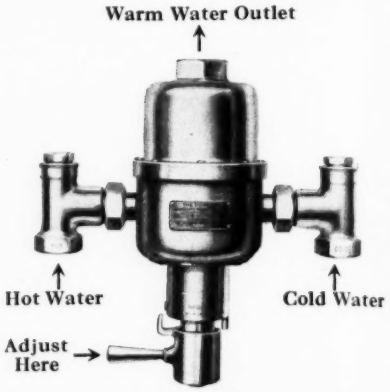
Conclusion

Hand valves and ordinary shower mixers do not protect bather from sudden "shots" of cold or scalding hot water caused by pressure changes when nearby showers, faucets, or flush valves are used.

A Powers Mixer, regardless of violent pressure changes, always holds the water at the desired temperature. Failure of cold water supply substantially cuts off the hot.

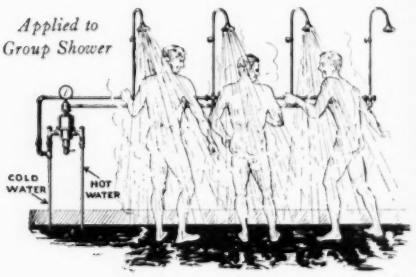
Write for book—showing complete data, roughing-in dimensions, and listing names of hundreds of users who have brought their showers up-to-date with Powers Mixers.

The Powers Thermostatic Water Controller



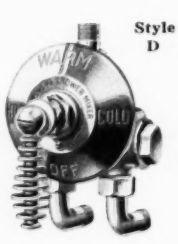
For group showers, baby baths, continuous flowing baths, car washing, etc. Scalding water cannot pass through this controller. Failure of cold water supply instantly shuts off the delivery. Simple in design. Rugged Construction. *Write for 12-page folder.*

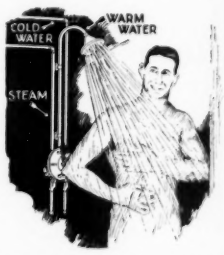
Applied to Group Shower



The Powers Steam and Water Mixer

Style D





For shower baths, wash sinks, car washing, etc. Steam at 10 to 100 lbs. pressure and cold water at any pressure, piped to this mixer will give you COLD—WARM—or HOT water instantly. Positively Safe! No "shots" of hot or cold water—no noise or water hammer. *Write for Bulletin No. 2035.*

THE POWERS REGULATOR COMPANY

35 years of specialization in temperature control

General Eastern Office
137 East 46th St., New York City

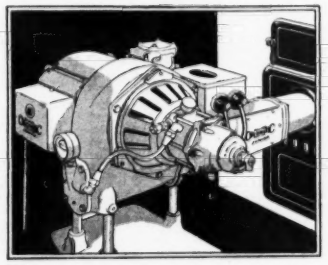
General Offices and Factory
2716 Greenview Ave., Chicago, Ill.

Canadian Powers Regulator Co., Ltd.
106 Lombard St., Toronto, Ont.

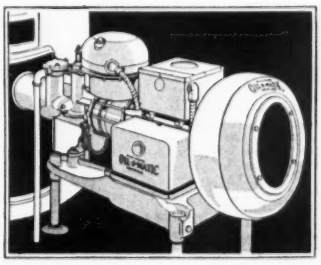
Offices in 35 other cities — See your telephone directory

POWERS

Make 1930
a Prosperous New Year
by selling
WILLIAMS OIL HEAT



The new Oil-O-Matic Junior offers every Williams advantage at a new low price!



The world famous Williams Oil-O-Matic Model J is heating nearly 100,000 homes!

LOOK at the figures on your last month's balance sheet. They will tell you whether you should investigate the new Williams franchise. Williams—whose Oil-O-Matic burners are heating far more homes and buildings than any other make—offers you an opportunity to profit from every heating prospect.

Dealers everywhere are enthusiastic over the new Oil-O-Matic Junior—and its new low price. Williams has more than doubled the sales possibilities in every market by bringing automatic fuel heating within reach of owners of medium-size homes.

WILLIAMS
OIL-O-MATIC
HEATING
Listed as Standard by Underwriters' Laboratories

A RADIO TREAT

Tune your radio to WJZ and NBC chain stations at 10 o'clock Eastern Standard Time each Tuesday night. Friday nights at 8:30 Central Standard Time tune in WGN, Chicago.

The world-famous Oil-O-Matic Model J offers larger homes and buildings the same superlative heating comfort it is giving nearly 100,000 larger homes and buildings.

To owners of small homes you can sell the low priced Dist-O-Matic—an automatic oil burner. An entirely new and profitable field is opened by the new Williams Dist-O-Stove which replaces coal and wood stoves with low-priced oil heat.

With these four great Williams products you can make 1930 a prosperous New Year. Write for details on these products and valuable franchise.

WILLIAMS OIL-O-MATIC HEATING CORPORATION
BLOOMINGTON, ILLINOIS

SPECIAL NOTICE

to

Plumbing and Heating Contractors

You can secure without charge, upon request, catalog sheets of any or all of the manufacturers listed below for use in loose-leaf binder.

These sheets are reprints of pages appearing in "Domestic Engineering Catalog." They conform to the standards adopted by the plumbing and heating industries as to page size, punching and weight of stock. If interested, write Domestic Engineering, 1900 Prairie Avenue, Chicago, on your letterhead giving the names of the concerns whose loose sheets you desire.

Domestic Engineering handles the Speedlok binder which is especially designed to hold standardized sheets. The price of the binder is $3.00.

Abendroth Bros. ..... Port Chester, N. Y.
Absolute Con-Tac-Tor Corp. ..... Elkhart, Ind.
Acme Asbestos Covering & Flooring Co. ..... Chicago, Ill.
Acme Frost Proof Closet Mfg. Co. ..... Baltimore, Md.
Acme Refining Co., The ..... Cleveland, Ohio
Alamo Engine Co. ..... Hillsdale, Mich.
Alamo Heater Co. ..... Chicago, Ill.
Alberene Stone Co. ..... New York City
Alliance Tank Co. ..... Alliance, Ohio
American Beauty Stove Co. ..... Erie, Pa.
American Brass Co. ..... Waterbury, Conn.
American District Steam Co. ..... North Tonawanda, N. Y.
American Manganese Bronze Co. ..... Holmesburg, Pa.
American Pipe Tool Co. ..... Chicago, Ill.
American Radiator Co. ..... New York City
American Steam Pump Co. ..... Battle Creek, Mich.
Armstrong Bros. Tool Co. ..... Chicago, Ill.
Armstrong Mfg. Co. ..... Bridgeport, Conn.
Artisan Metal Products Co. ..... Charlestown, Mass.
Atchison Specialty Mfg. Co. ..... Atchison, Kans.
Atkins Mfg. Co., H. C. ..... St. Louis, Mo.
Atlantic Tubing Co. ..... Providence, R. I.
Atlas Brass Foundry Co. ..... Columbus, Ohio
Automatic Gas Steam Radiator Co. ..... Pittsburgh, Pa.

Badger & Sons Co., E. B. ..... Boston, Mass.
Ballantine, B. D. ..... Fitchburg, Mass.
Baltimore Valve Corp. ..... Baltimore, Md.
Barnes Tool Co., The ..... New Haven, Conn.
Barrett Mfg. Co., James ..... Boston, Mass.
Bay Ridge Specialty Co., Inc. ..... Trenton, N. J.
Bead Chain Mfg. Co. ..... Bridgeport, Conn.
Beardsley & Wolcott Mfg. Co., The ..... Waterbury, Conn.
(Successors to Berbecker & Rowland Mfg. Co.)
Beaton & Cadwell Mfg. Co., The ..... New Britain, Conn.
Beaton & Corbin Mfg. Co., The ..... Southington, Conn.
Beilman Water Heater Co., Inc., The ..... Buffalo, N. Y.
Bell & Gossett Co. ..... Chicago, Ill.
Beneke Mfg. Co. ..... Chicago, Ill.
Benson Co., Inc., Alex R. ..... Hudson, N. Y.
Bignall Co., The ..... Medina, N. Y.
Blue Seal Chemical Co. ..... Roselle, N. J.
Boosey Mfg. Co., Norman ..... Detroit, Mich.
Borden Co. ..... Warren, Ohio
Bowlus Mfg. Co., The ..... Springfield, Ohio
Boyle & Co., Inc., C. A. ..... Chicago, Ill.
Bradley Washfountain Co. ..... Milwaukee, Wis.
Brunswick-Kroeschell Company ..... Chicago, Ill.
Buckeye Pump & Mfg. Co. ..... Columbus, Ohio
Buffalo Meter Co. ..... Buffalo, N. Y.
Burkert Co., Inc., R. N. ..... Trenton, N. J.
(Formerly Trenjer Specialty Co.)
Burnham Boiler Corp. ..... Irvington, N. Y.
Butler Mfg. Co. ..... Minneapolis, Minn.
Butler, Thos. F. ..... Lorain, Ohio

Cabco Iron Works, Inc. ..... Gowanda, N. Y.
Capitol Brass Works ..... Detroit, Mich.
Carty & Moore Engineering Co., Inc. ..... Detroit, Mich.
Case & Son Mfg. Co., W. A. ..... Buffalo, N. Y.
Celina Mfg. Co. ..... Celina, Ohio
Central Foundry Co. ..... New York City
Central Radiator Co. ..... New York City
Central Specialty Co. ..... Detroit, Mich.
Chamberlain Co., The ..... Pittsburgh, Pa.
Chase Brass & Copper Co., Inc. ..... Waterbury, Conn.
Chemical Toilet Corp. ..... Syracuse, N. Y.
Chicago Faucet Co., The ..... Chicago, Ill.
Chicago Flexible Shaft Co. (Sprinkler Division) ..... Chicago, Ill.
Chicago Granitine Mfg. Co. ..... Chicago, Ill.
Chicago Pipethread Machine Co. ..... Racine, Wis.
Chicago Pump Co. ..... Chicago, Ill.
City Brass Corp. ..... New York City
Cleveland Brass Mfg. Co., The ..... Cleveland, Ohio
Cleveland Heater Co. ..... Cleveland, Ohio

Columbia Radiator Co. ..... McKeesport, Pa.
Comet Radiator Co. ..... Philadelphia, Pa.
Commonwealth Brass Corp. ..... Detroit, Mich.
Compound Injector & Specialty Co. ..... Chicago, Ill.
Conemaugh Iron Works ..... Latrobe, Pa.
Connors Paint Mfg. Co., Wm., The ..... Troy, N. Y.
Consolidated Ashcroft Hancock Co., Inc. ..... New York City
(Division of Manning, Maxwell & Moore, Inc.)
Corcoran Mfg. Co. ..... Cincinnati, Ohio
Covert Company, H. W. ..... New York City
Coyne & Delany Co. ..... Brooklyn, N. Y.
Crampton-Farley Brass Co. ..... Kansas City, Mo.
Crist & Schilken Co. ..... Pittsburgh, Pa.
Crocker Chair Co. ..... Sheboygan, Wis.
Croll & Son, Jesse G. ..... Philadelphia, Pa.
Crown Die & Tool Co. ..... Chicago, Ill.
Curtin Valve Co., A. F. ..... Medford, Mass.
Curtis & Curtis Co., The ..... Bridgeport, Conn.

Dahlquist Mfg. Co. ..... South Boston, Mass.
Dail Steel Products Co. ..... Lansing, Mich.
Dargent, Charles ..... Brooklyn, N. Y.
Dart Mfg. Co., E. M. ..... Providence, R. I.
David-Franklin Co. ..... Irvington, N. J.
Davis Engineering Corp. ..... New York City
De-Bar Co. ..... Brooklyn, N. Y.
Decatur Pump Co. ..... Decatur, Ill.
Dececo Co., The ..... Boston, Mass.
Delaware Tool Co. ..... Wilmington, Del.
d'Este Co., Julian ..... Boston, Mass.
Detroit Lubricator Co. ..... Detroit, Mich.
Dick Brothers, Inc. ..... Reading, Pa.
Dixie Flashing Co., Inc. ..... Birmingham, Ala.
Dole Valve Company ..... Chicago, Ill.
Donnelly Mfg. Co. ..... Malden, Mass.
Duro Wood Products, Inc. ..... Capac, Mich.

Eagle-Picher Lead Co., The ..... Cincinnati, Ohio
Eastern Foundry Co., The ..... Boyertown, Pa.
Ebinger Sanitary Mfg. Co., D. A. ..... Columbus, Ohio
Economy Heater Co. ..... Chicago, Ill.
Economy Pumping Machinery Co. ..... Chicago, Ill.
Eljer Co. ..... Ford City, Pa.
Elkay Mfg. Co. ..... Chicago, Ill.
Elkhart Foundry & Machine Co. ..... Elkhart, Ind.
Elkhart Iron Works ..... Elkhart, Ind.
Emerson & Sack, Inc. ..... Boston, Mass.
Enterprise Brass Works ..... Muskegon, Mich.
Erie Tool Works, The ..... Erie, Pa.
Estabrook's Sons, R. ..... South Boston, Mass.
Ever-Ready Gas Heater Valve Co. ..... Detroit, Mich.
Excelsior Leather Washer Mfg. Co. ..... Rockford, Ill.
Excelso Products Corp. ..... Buffalo, N. Y.
Exeter Brass Works ..... Exeter, N. H.

Fairbanks Engineering Co. ..... Worcester, Mass.
Federal Radiator Co. ..... Zanesville, Ohio
Ferguson & Lange Foundry Co. ..... Chicago, Ill.
Fischer Spring Co., Chas. ..... Brooklyn, N. Y.
Flagg & Co., Inc., Stanley G. ..... Philadelphia, Pa.
Florence Stove Co. ..... Boston, Mass.
Forest Mfg. Co. ..... Hickory, N. C.

General Ceramics Co. ..... New York City
Gerard Mfg. Co. ..... Dickson City, Pa.
Gerstein & Cooper ..... South Boston, Mass.
Gerstein & Sons, H. ..... South Boston, Mass.
Gleockle, Jr., A. F. ..... Rochester, N. Y.
Globe Brass Mfg. Co. ..... Cleveland, Ohio
Goulds Pumps, Inc. ..... Seneca Falls, N. Y.
Grabler Mfg. Co. ..... Cleveland, Ohio
Grand Haven Brass Foundry ..... Grand Haven, Mich.
Greenfield Tap & Die Corp. ..... Greenfield, Mass.
Grinnell Co., Inc. ..... Providence, R. I.

Haas Co., Philip ... Dayton, Ohio
Hajoca Corporation ... Philadelphia, Pa.
Hamburg Boiler Works, Inc ... Hamburg, Pa.
Hanson Brothers Scale Co ... Chicago, Ill.
Hays Mfg. Co ... Erie, Pa.
Healey Brass Foundry Co., Peter ... Evansville, Ind.
Healy-Ruff Company ... St. Paul, Minn.
Heap & Sons, Wm ... Grand Haven, Mich.
Heller Bros. Co ... Newark, N. J.
Hercules Chemical Co ... New York City
Hermetik Co ... Philadelphia, Pa.
Hetzel, J. G., Estate of ... Newark, N. J.
Hindley Mfg. Co ... Valley Falls, R. I.
Hoffman Specialty Co ... Waterbury, Conn.
Hollands Mfg. Co ... Erie, Pa.
Holyoke Heater Co ... Holyoke, Mass.
Hotstream Heater Co ... Cleveland, Ohio
Hudson Brass Works, Inc ... Brooklyn, N. Y.
Hunt & Son, C. B ... Salem, Ohio
Hutchison Regulator Sales Corp ... New York City

I-X-L Pump & Mfg. Co., Inc ... Philadelphia, Pa.
Ideal Furnace Co ... Detroit, Mich.
Ideal Pump Co ... Detroit, Mich.
Illinois Engineering Company ... Chicago, Ill.
Inland Iron Works, Inc ... Joliet, Ill.

J. R. S. Specialties Mfg. Co., Inc ... Patchogue, N. Y.
Janette Mfg. Co ... Chicago, Ill.
Jenkins Brothers ... New York City
Johns-Manville Corp ... New York City
Johnson Mfg. Co ... Detroit, Mich.
Johnson-Washburn Co ... Boston, Mass.
Jones Hollow Ware Co ... Baltimore, Md.
Josam Mfg. Co ... Cleveland, Ohio
Judd Co., H. L ... New York City

Kahn & Co., H ... Philadelphia, Pa.
Kainer & Co ... Chicago, Ill.
Kaustine Co., Inc ... Perry, N. Y.
Keeney Mfg. Co., The ... Newington, Conn.
Kellogg Mfg. Co ... Rochester, N. Y.
Kemoshyne Products, Inc ... Philadelphia, Pa.
Kemp Mfg. Co., C. M ... Baltimore, Md.
Kennedy Valve Mfg. Co ... Elmira, N. Y.
Ketcham Mfg. Corp., G. M ... Brooklyn, N. Y.
Kewanee Boiler Company ... Kewanee, Ill.
Keystone Brass Works ... Erie, Pa.
Keystone Pottery Co ... Trenton, N. J.
Kieley & Mueller, Inc ... New York City
King Union Co. Inc ... Providence, R. I.
Kitson Co ... Philadelphia, Pa.
Kleinert Rubber Co., I. B ... New York City
Knott Mfg. Co ... Tell City, Ind.
Kortick Manufacturing Co ... San Francisco, Cal.
Kretschmer Mfg. Co ... Dubuque, Iowa
Kupferle Foundry Co., John C ... St. Louis, Mo.

Lavelle Rubber Co ... Chicago, Ill.
Lawson Co., The F. H ... Cincinnati, Ohio
Lawson Mfg. Co ... Cleveland, Ohio
Leader Brass Foundry & Mfg. Co., The ... Cleveland, Ohio
Leavitt Machine Co ... Orange, Mass.
Lehman Sprayshield Co ... Philadelphia, Pa.
Lehnert & Co ... New York City
Leonard-Rooke Co ... Providence, R. I.
Lewis Sanitary Tool Co ... Quincy, Mass.
Liquid Veneer Corp ... Buffalo, N. Y.
Lissberger & Son, Inc., Marks ... Long Island City, N. Y.
Little Giant Mfg. Co ... Minneapolis, Minn.
Luzerne Rubber Co., The ... Trenton, N. J.
Lytton Mfg. Corp ... Franklin, Va.

McAlear Mfg. Co., The ... Chicago, Ill.
McCaffrey Mfg. Co ... Chicago, Ill.
McCoy Mfg. Co., Inc ... New York City
McDonnell & Miller ... Chicago, Ill.
McGurrin Supply Co ... Grand Rapids, Mich.
Malleable Iron Fittings Co ... Branford, Conn.
Martin & Sons, H. P ... Owensboro, Ky.
Marvel Machine & Brass Works ... Cleveland, Ohio
Meneley-Diederich Co., Inc ... Los Angeles, Cal.
Michigan Pipe Co ... Bay City, Mich.
Milford Iron Foundry ... Milford, Mass.
Milwaukee Valve Co ... Milwaukee, Wis.
Minneapolis-Honeywell Regulator Co ... Minneapolis, Minn.
Misener & Irving Mfg. Co., Inc ... Syracuse, N. Y.
Modern Iron Works ... Quincy, Ill.
Modine Mfg. Co ... Racine, Wis.
Mohawk Septic Tank Co ... Schenectady, N. Y.
Molby Boiler Co ... New York City
Moore, F. J ... Minneapolis, Minn.
Morton Mfg. Co ... Chicago, Ill.
Muller, Edward ... North Bergen, N. J.

Nash Engineering Co ... South Norwalk, Conn.
Nason Mfg. Co ... New York City
National Pipe Bending Co ... New Haven, Conn.
National Steel Tank & Mfg. Co ... Bradford, Ill.
Neptune Meter Co ... New York City
Never Rust Co ... Harrisburg, Pa.
Newark Brass Works ... Newark, N. J.
Newark Brush & Scraper Co ... Irvington, N. J.
New Britain Machine Co ... New Britain, Conn.
Newbury Mfg. Co ... Monroe, N. Y.
Newbury & Son, Jay H ... Goshen, N. Y.
New York Air Valve Corp ... New York City
New York Brass Foundry Co ... New York City
Northern Indiana Brass Co ... Elkhart, Ind.
Northwestern Chemical Co., The ... Marietta, Ohio
Novelty Steam Boiler Works Co ... Baltimore, Md.
Nustone Products Corp ... Union City, N. J.
Nye Tool & Machine Works ... Chicago, Ill.

O-E Specialty Mfg. Co ... Milwaukee, Wis.
Ohio Brass Co ... Mansfield, Ohio
Ohio Heater Co., The ... Columbus, Ohio
Olsen, H. T ... New York City

Paine Co ... Chicago, Ill.
Para Rubber Co ... Newark, N. J.
Paradine Mfg. Co ... Erie, Pa.
Peerless Machine Co ... Racine, Wis.
Penn Engineering Co., The ... Philadelphia, Pa.
Perfection Stove Co ... Cleveland, Ohio
Phenolic Products Corporation ... Rockford, Ill.
Phillips Drill Co ... Chicago, Ill.
Phoenix Brass Fittings Corp ... Irvington, N. J.
Pierce, Butler & Pierce Mfg. Corp ... New York City
Pittsburg Water Heater Co ... Pittsburgh, Pa.
Plomb Tool Co ... Los Angeles, Cal.
Plusco Co ... Concord, N. H.
Polygon Products Co ... Boston, Mass.
Porcela-Radax Co ... Pittsburgh, Pa.
Portland Iron Works ... Portland, Ore.
Powers Regulator Co ... Chicago, Ill.

Quad Stove Mfg. Co., The ... Columbus, Ohio
Quaker City Iron Works ... Philadelphia, Pa.

Radiant Steel Products Co ... Williamsport, Pa.
Radiator Specialty Co ... Charlotte, N. C.
Randolph-Clowes Co., The ... Waterbury, Conn.
Rathbun Products, Inc ... Detroit, Mich.
Rawlplug Co., Inc., The ... New York City
Reed Mfg. Co ... Erie, Pa.
Reinhardt Mfg. Co., Edwin G ... Cincinnati, Ohio
Rhode Island Fittings Co ... Providence, R. I.
Richards Corp ... Pittsburgh, Pa.
Richmond Foundry & Mfg. Co., Inc ... Richmond, Va.
Ridge Tool Co ... Elyria, Ohio
Riverside Boiler Works, Inc ... Cambridge, Mass.
Riverside Foundry & Galvanizing Co ... Kalamazoo, Mich.
Robbins, Gamwell & Co ... Pittsfield, Mass.
Rockford Brass Works ... Rockford, Ill.
Rock Island Mfg. Co ... Rock Island, Ill.
Royal Brass Mfg. Co., The ... Cleveland, Ohio
Rumsey Pump Co., Ltd ... Seneca Falls, N. Y.
Russell Mfg. Co., Inc., John M ... Naugatuck, Conn.
Russell & Co., W. A ... New York City

Sall Mountain Co ... Chicago, Ill.
Sands Mfg. Co ... Cleveland, Ohio
Sanitary-Dash Corp ... New York City
Sarco Co., Inc ... New York City
Savo Mfg. Co ... Chicago, Ill.
Scadron Brothers ... New York City
Scaife & Sons Co., Wm. B ... Oakmont, Pa.
Scientific Heater Co ... Cleveland, Ohio
S. E. T. Valve & Hydrant Co ... New York, N. Y.
Self-Cleaning Strainer Co ... Chicago, Ill.
Selfridge-Norton Mfg. Co ... Cleveland, Ohio
Semler Co ... Jeanette, Pa.
Sherwood Brass Works ... Detroit, Mich.
Shoe-Letcher Co., Inc ... Jersey City, N. J.
Simonds Saw & Steel Co ... Fitchburg, Mass.
Simplex Boiler Stand Co ... Brooklyn, N. Y.
Simplex Mfg. Co ... Chicago, Ill.
Spencer Regulator Co ... Salem, Mass.
Standard Asbestos Mfg. Co ... Chicago, Ill.
Standard Elsmere Granite Co ... Chicago, Ill.
Standard Tank & Seat Co ... Camden, N. J.
Standard Water Systems Co. of N. J ... Hampton, N. J.
Stark Pump Co ... Detroit, Mich.
Sterling Faucet Co ... Newcomerstown, Ohio
Stoll, Chas. J ... New York City
Stringer Brothers Co ... Chicago, Ill.
Structural Slate Co ... Pen Argyl, Pa.
Stuart & Co., D. A ... Chicago, Ill.
Swett Iron Works, A. L ... Medina, N. Y.

Taco Heaters, Inc ... New York City
Taylor Co., Halsey W., The ... Warren, Ohio
Teck Manufacturing Co ... Chicago, Ill.
Teekorator, Inc ... Rochester, N. Y.
Tillery's Little Janitor Clock Co ... Newark, N. J.
Titchener & Co., E. H ... Binghamton, N. Y.
Trageser Steam Copper Works, John ... Maspeth, N. Y.
Trenton Brass & Machine Co ... Trenton, N. J.
Trimont Mfg. Co., Inc ... Boston, Mass.
Troop Water Heater Co ... Pittsburgh, Pa.
Tryco Products, Inc ... Westfield, Mass.

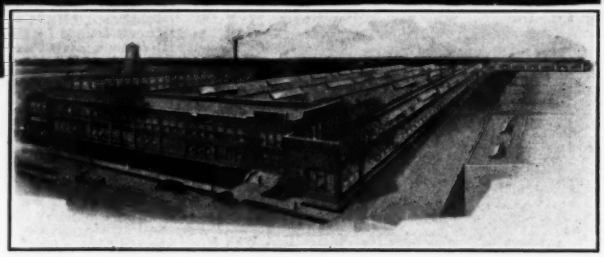
Utica Radiator Corp ... Utica, N.Y.
Utility Laboratory, Inc ... Brooklyn, N. Y.

Van Arnam Mfg. Co ... Fort Wayne, Ind.
Vanderman Mfg. Co ... Willimantic, Conn.
Vinco Co., Inc ... New York City
Vitreous Enameling & Stamping Co., Inc ... New York City
Vogel Co., Joseph A ... Wilmington, Del.
Vulcatex, Inc ... Chicago, Ill.

Wade Iron Sanitary Mfg. Co ... Chicago, Ill.
Walker Dishwasher Corp ... Syracuse, N. Y.
Walworth Company ... Boston, Mass.
Ware Coupling & Nipple Co ... Ware, Mass.
Warnock Manufacturing Co ... Worcester, Mass.
Warren Electric Appliance Co ... Warren, Pa.
Washington Metal Products Co ... Washington C. H., Ohio
Water Works Equipment Co., Inc ... New York City
Watts Regulator Co ... Lawrence, Mass.
Weis Mfg. Co., Inc., Henry ... Elkhart, Ind.
Wesley Co., Chas ... Chicago, Ill.
Wessels & Sons, D. D ... Detroit, Mich.
Western Wire Products Co ... St. Louis, Mo.
Wheeling Machine Products Co ... Wheeling, W. Va.
White Flush Valve Mfg. Co ... Denver, Colo.
White Steel Sanitary Furniture Co ... Grand Rapids, Mich.
Whitlock Coil Pipe Co ... Hartford, Conn.
Wilks Mfg. Co., S ... Chicago, Ill.
Williams & Co., J. H ... Buffalo, N. Y.
Worcester Brush & Scraper Co ... Worcester, Mass.

"X" Laboratories ... New York City

Yeomans Brothers Co ... Chicago, Ill.
Yost Mfg. Co ... Meadville, Pa.



The new addition showing the start of the second story steel work.

Inset—A bird's-eye of the "Toledo" plant.

GROWTH—

EVIDENCE OF "TOLEDO" SUPERIORITY

The end of 1929 finds "TOLEDO" setting a new record in sales. Never before have "TOLEDO" tools enjoyed such popularity—which must be deserved.

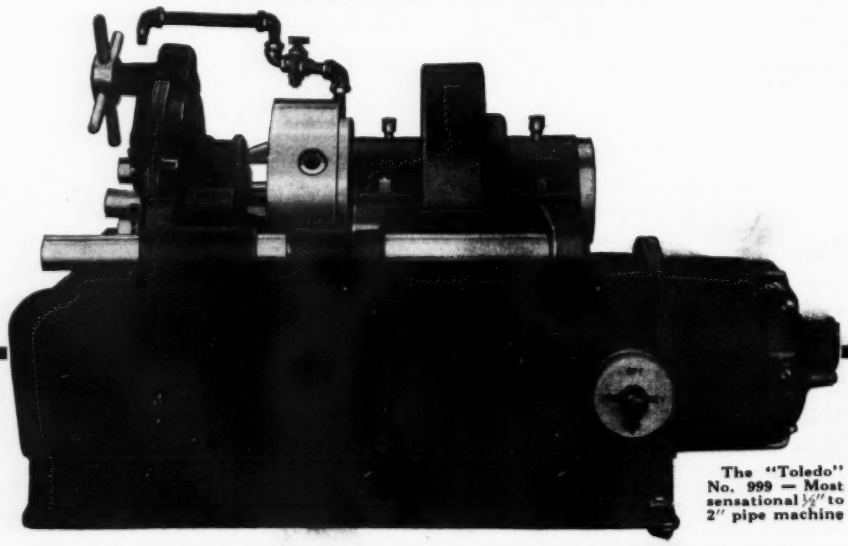
Now at the beginning of the new year "TOLEDO" is completing its 7th and largest addition to its plant. With the addition of this new unit (shown above) "TOLEDO" will be better able than ever before to give the trade the prompt "TOLEDO" service we have always endeavored to maintain.

During the past year the "TOLEDO" No. 999, the most sensational, power pipe machine, was offered to the trade. Hundreds of these high efficiency machines are now in use, meeting in every way the exacting demands for a light, portable, high-speed, practical, power pipe machine to cut and thread ⅛-inch to 2-inch pipe.

If you do not already know of this remarkable machine to cut and thread small pipe, drop us a post card today—now—for complete information and the low net price. A No. 999 will help you make 1930 your most profitable year.

THE TOLEDO PIPE THREADING MACHINE CO., TOLEDO, OHIO

New York Office, 72 Lafayette St.



The "Toledo" No. 999 — Most sensational ⅛" to 2" pipe machine

DOMESTIC ENGINEERING
Plumbing & Heating Contracting and Merchandising

Vol. 129, No. 7
Whole No. 1907

Chicago, Illinois
December 28, 1929

OBSERVATIONS

What Is Merchandising?

Just a year ago (in our issue of December 29, 1928) we published an editorial, "What Is Merchandising?" in which we threw open our columns to the industry, and undertook an investigation, to define the word merchandising as applied to the plumbing and heating industry.

The reason for instituting the investigation was the indiscriminate use of the word, as well as the indiscriminate criticism of the plumbing and heating contractor as lacking merchandising ability. We felt that if we could set up a definition of merchandising which would be clear to all concerned, it would aid in perfecting the selling methods of the industry.

A number of readers of DOMESTIC ENGINEERING took advantage of our offer and we published their observations. But, as the year advanced, it became clear that every one was in the position of the executive of a midwest wholesale house, who wrote: "I have put in very many hours trying to solve this problem and sometimes feel that I am as far away from a solution as at the beginning."

Difficulties Encountered

It became more and more clear that it was going to be difficult to set up an accurate definition of the word merchandising. In one form or another, we met with the thought which has been cited. Men who had given much anxious consideration to the question seemed unable to furnish anything but qualified statements. References were made to "high grade sales engineers with inflexible, geometrical plans," who could not solve the distribution problems of the industry. As one writer said: "Two or three perfectly wonderful and costly plans based on those principles have already ended in the proverbial ash can." The year saw the unsuccessful termination of plans undertaken in the thought that the last word in demonstrating merchandising methods had been discovered.

It became evident, therefore, that before the definition of merchandising which we sought could be worked out, there were more fundamental problems to be faced. There was something, or perhaps many things, in our present distribution system which stood in the way of a clear conception of just what would constitute merchandising on the part of the plumbing and heating contractor.

Fundamental Conditions

One of the first clues as to the direction in which this preliminary study would have to proceed was in our observation that, generally speaking, contractors reported that it was impossible to merchandise the regular run of plumbing and heating products in the same way that specialties proper to our field could be merchandised.

Two reasons for this condition were assigned. First, contractors complained that it was a thankless task to work up a prospect, let us say, for the purchase of a second bathroom outfit, only to have the job go to some wholesaler's "Man Friday" who was willing to take it for what he could get out of it in wages, the wholesale house assuming all the financial arrangements necessary, paying the contractor as if he were actually working directly for the wholesale house. The other reason given was this: The contractor who was maintaining a good type of sales room, in a more or less expensive location, could not compete as against another contractor who, perhaps working out of a barn somewhere, could cut the price of the job by the amount represented as overhead in the first contractor's bid—which overhead, it is worth while to notice, was entailed directly as a result of an attempt to bring and to keep the products of manufacturers before the public of that community.

These, then, were two straws that showed which way the wind was blowing. Credit conditions did not, and do not yet, permit anything like a scientific merchandising plan, because of the completely unscientific and unbusinesslike methods pursued by many wholesalers in their search for volume. And the unequal position as between the contractor who

Contractor Difficulties

makes an investment in order that he may offer a convenient shopping place to the public, and keep the products of the industry constantly before his community, and the contractor who has no such overhead and is always ready to lower the price, since he can buy at the same price as the first, renders merchandising plans ineffective in many cases.

It is worth while noting that this latter condition exists even in connection with specialties. We have had cases cited to us of carefully planned campaigns which did not net the return they should have because the interest created was capitalized by contractors who had undertaken no expense for displays or other selling efforts.

Nothing could more clearly set the seal of proof on these observations than the action of the directors of the Plumbing and Heating Industries Bureau at their last meeting. Their decision that the Bureau should, for the coming year, function as a "policy finding" body, shows clearly that they regard it as necessary to furnish a firmer foundation for its efforts to promote merchandising. And the first problem with which it is to deal is this one of the unequal position as between those contractors who are investing money to popularize the products of the industry, and those who are not, but who are in as favorable a position as regards the purchase of those products.

Under the circumstances, it seems to us that those plumbing and heating contractors (and there are many) who have gone ahead with successful merchandising plans in the face of the chaotic distribution conditions in the industry, deserve commendation. They certainly should be excluded most clearly from the blanket statement, heard so often, that the plumbing and heating contractor is no merchant. Against heavy odds, these men have proved the contrary. And, while they are not in the majority as to numbers, they do represent a purchasing power and a constructive influence far beyond their mere numbers.

"Side-Line" Distribution

There are many oil burners, sold through so-called "specialty men" and high-pressure sales crews, being serviced by heating contractors. When the oil burner fails to function, and the specialty man can not put his finger on the trouble, the home owner has only one recourse. He must call in the heating contractor who may discover that the oil burner should never have been installed. He has even discovered oil burners (not surprising when you realize that there have been as many as nine hundred of them listed at one time) which were of doubtful value.

The result has been that oil burner manufacturers have felt a drag on their business. They have complained that the heating contractor can not be interested in a good merchandising proposition. It would be better to say that a great deal of educational effort, on the part of those oil burner manufacturers who have weathered the period of experiment, must be done to overcome the short-sighted selling policy of the industry as a whole in the past.

Setting Up Resistance

These reflections are aroused by the fact that two products which ought to go through the hands of the heating contractor are now being marketed in some sections of the country by coal dealers. These are small domestic stokers and a damper regulator. Coal men have taken them up as a means of combating the competition of the oil burner.

It is extremely likely that the situation in the oil burner field is going to be reproduced in connection with these two products. Coal dealers are going to sell them and get them installed somehow—and the heating contractor is going to be called in to service them.

Doctors think it unethical to meddle with a case which some other doctor has taken, unless that doctor calls them in. One suspects that that rule is based, in part, on the doctor's desire to protect his own good reputation. If he is called in on a case which another doctor has bungled, and the patient does not recover, those who are not too accurate in their observations will lay the failure at the door of the second doctor.

The first and last interest which the heating contractor has in a heating plant is to make it heat. That is a bald statement, but it is a true one. You may add all the devices you desire to a heating plant—he will add them for you, if they are worth while—but he will still be interested in reading the pressure gauge and the thermostat upstairs. Call him in to attend to a heating plant specialty, which he did not install, and which he finds poorly installed or utterly unsuitable to conditions, and you can not blame him if he questions the policy of the manufacturer who allows anyone to handle his product.

The Contractor's Interest

It may be slower to build confidence with the heating contractor—but in the long run it will be much more profitable. The panic of the coal people is a poor substitute for experience.

A splendid example of the kind of selling job typical of the conscientious plumbing and heating contractor will be found in the Plumbing and Heating Merchandising Section in this issue of DOMESTIC ENGINEERING. The manufacturer of an oil burner which is passing into consumption through such careful hands may lay aside his worries. He is well served, and profitably.

Fig. 1.—Exterior view of a ten-room house in which a coke burning boiler was installed and results observed

A Coke Burning Boiler

Details of installation and a description of the manufacture of coke and of the boiler

By A. H. EBBERLE

IN THIS present age of rapid scientific development one cannot stop too long to wonder about any single great achievement before many others follow at such rapid pace that it would take hours of reading and study to keep well informed. To sum up the situation briefly, it can be stated that the modern trend of scientific research and development, in all lines of business, is to make living easier and more enjoyable. Labor saving devices of all kinds enter into every phase of our every day existence. Huge machines installed in great industrial plants turn out many articles by the thousands and tens of thousands every day. As scientists and engineers continue their discoveries of nature's secrets, many by-products, at first discarded, become of great value and the world, as a whole, benefits by the economic saving made.

The Process of Making Coke

The purpose of this article is to describe briefly a new fuel, the special means for its combustion, and a particular installation showing its actual use, which has several features peculiar to itself and is well adapted for domestic use. It has long been known that if bituminous coal is heated without contact of air, the volatile matter is driven off, and a residue remains which is called coke. This process is known as the destructive distillation of coal. The first coke ovens were in the form of large holes dug in the side of a mountain. These were filled with bituminous coal, combustion was started and then the coal was covered up with sod and dirt to exclude air. The heat drove off the volatile matter, which escaped, through a vent, into the atmosphere and was lost as far as practical use was concerned.

After a certain time of coking, the residue was removed as coke. This type of coke was called beehive coke, so called because the ovens were shaped like large beehives. Ten years ago, almost eighty-five per cent of the coke made in this country was of the beehive type.

Today about ninety per cent of the coke made in this country comes from great by-product coke plants. In these plants the coal is put into large brick ovens, heated on both sides, causing a uniform coking of the coal and all volatile matter is recovered in the form of gas, benzols, crude tar and ammonia. Nothing is wasted, and the coke made is incomparable in quality with the old beehive method of coking. As the by-product coke industry developed, the high quality of by-product coke became rapidly known. Nearly every large metropolitan

center of this country has one or more by-product coke plants.

The Contents of Coke

A high quality coke is an absolutely smokeless fuel, of low ash and sulphur content and has a heating value (B.t.u. per pound) of at least 13,500. It requires approximately one and one-half tons of bituminous coal to make one ton of coke. The best bituminous coals are used for this purpose. The outstanding feature of good coke is that it contains very little ash and has a very high heating value. It is thus a very economical fuel to use for domestic heating. Good coke contains practically from ninety to ninety-two per cent carbon, giving high combustion efficiencies. Less draft is required, which slows up the velocity of the hot waste gases of combustion through the heating flues of the boiler. This assures a greater time of contact between the gases and heating surface of the boiler and more heat is recovered.

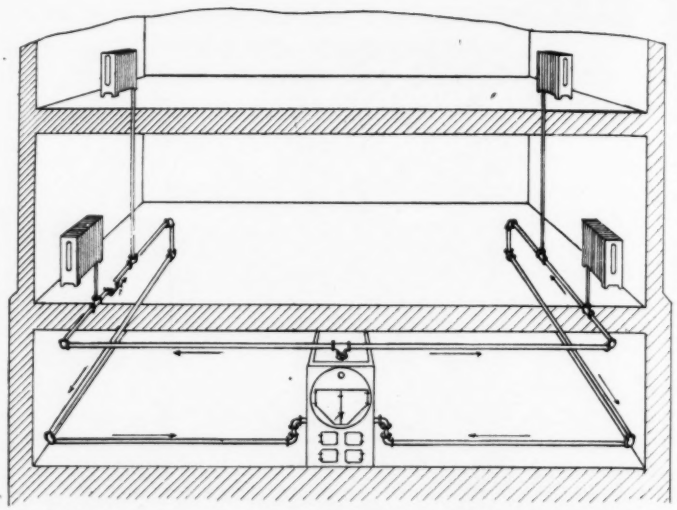


Fig. 2.—The piping diagram of the one pipe steam heating plant used in this installation

Five years ago very little coke entered the domestic fuel market and only a small percentage of a coke plant's production entered this market. During the last five years as the value of using good coke for domestic heating became more and more known, many more plants have been built, and today many plants turn out half of their yearly production in the form of domestic coke. A typical analysis of high quality domestic coke is as follows:

Volatile matter	1.5%
Fixed carbon	90.0%-92.0%
Ash	6.0%- 8.0%

The sulphur in good cokes usually runs much below one per cent.

B.t.u. per pound.....13,500

Actual tests have shown that very little refuse is obtained from the ash pit when using good coke. This is due to the low percentage of unburnt carbon in the ash.

Any good domestic coke can be burned in any type of boiler. As far as the writer has determined, good domestic coke of high quality can be purchased almost in any part of this country for $12.50 to $13.00 per ton, delivered.

The great rapid development of by-product coke in the domestic heating field has received recognition from large manufacturers of house-heating units, and boilers have been designed to fully accommodate the burning of coke as well as any other solid fuel.

A Coke Burning Boiler

When the manufacturers turned their attention to the subject of coke burning there were several viewpoints to consider. Gas consumption in this country is rapidly increasing, and with it the production of coke, which calls for an economical use of this fuel. In studying any question like this, it is both advisable and profitable to consider first the world-wide developments on the subject and then start the new investigation from the level already reached by our fellow workers.

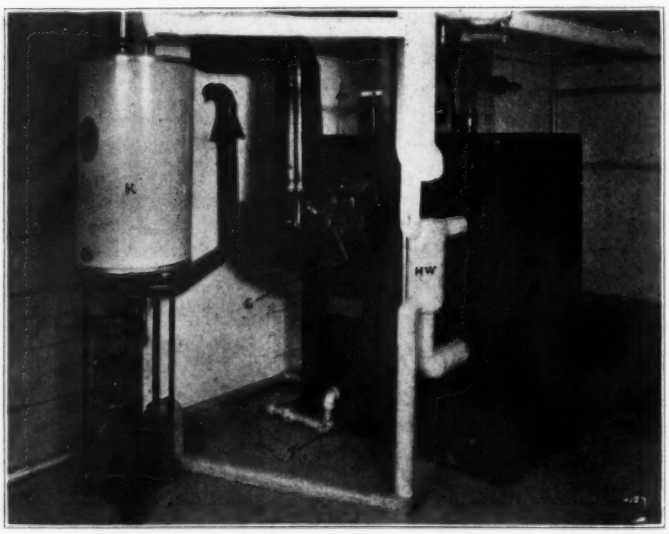


Fig. 3.—Rear view of the boiler showing the heat interchanger for the hot water supply (H. W.) and the hot water storage tank, (K). Numbers (6 and 7) call attention to the damper and draft arrangement which work together

European engineers have used coke for a long time as domestic fuel to their entire satisfaction. One of the main reasons for the small consumption of domestic coke in the past is to be found in the fact that coke needs a very large fuel magazine—almost twice as large as that required for anthracite, if, with the same boiler load, the same length of firing period is to be obtained.

In the construction of the domestic boiler which is especially designed to burn coke successfully, European knowledge is used, and a few other promising features have been added.

We see first, Fig. 5, a large, all-sides water cooled magazine, M, so determined that at full rate an eight-hour firing period is guaranteed, which means that the boiler, installed with 25 per cent for reserve for pipe losses and 25 per cent reserve for emergency, will call for

attention in the average winter weather of the average northern city not more than once in 24 hours. We see, further, the desire to use the radiation of the incandescent fuel bed, R, as much as possible, a factor which saves iron. At the hottest point, P, secondary air, S, is introduced and the flue gases of complete combustion are then forced through a long revertible travel, F, into the collecting smokehood, H, which arrangement assures heat transmission by convection. A by-pass, B, which permits the elimination of the revertible flue and connects the fire room direct with the smokehood, will be discussed later on. An insert piece, J, acts as an effective water separator in each section and forces the steam to enter the nipple from the top which secures dry steam. Fig. 4 shows a front view of the boiler.

The stack gas temperature at full rate does not exceed 700 degrees Fahr. and the required draft for that load is only 0.22-inch water column. As this boiler is built sideways, whereby each section is a complete boiler in itself, so that live and dead grate, primary and secondary air, heating surface, etc., increase in proportion to the number of sections used, the performance charts are good for all assemblages—a fact which has been proven by tests.

We also see in Fig. 5 a one-way flue travel, a distinct change from European practice, and giving many advantages in weight and place requirements. The boiler has a water-cooled airtight ashpit, A, which is designed to assure accurate and positive control by automatic regulation. In starting the fire in bad weather, a handle, Fig. 4, is turned to the left side, thereby, as previously mentioned, connecting the flue chamber directly to the smokehood, which arrangement has given full satisfaction.

Test to Determine Presence of Gases in Magazine

In testing the boiler it was tried to operate it under the poorest possible conditions, and no dangerous gas accumulation in the magazine could be found.

As this seems to be an important point—more so on account of the spacious magazine and the large amount of coal stored, we would like to go into more detail.

First has to be mentioned that the same handle which, on its left turn, operates the by-pass, closes, in its right movement, the damper in the smokehood connection to a certain minimum, thereby checking the boiler's output. No separate damper in the smokehood is required or permissible.

Secondly, we find that in the magazine boiler's feed door, there are invisibly located openings which, by means of the chimney draft, vent the magazines uninterruptedly.

To study the effectiveness of these arrangements, the boiler was brought up to full operating load, and then its output suddenly cut down to 15 per cent of the rating in using the before mentioned damper, and by shutting the steam valve which automatically increased the pressure and forced the regulator to close the air intake and opened the cold air check. The latter is designed in such a way that the cold air enters on the bottom, whereas the hot gases stream on the top of the smokehood, thus preventing the escape of combustion gases into the room. Under these most unfavorable conditions, the magazine was still under a slightly positive draft, so that no gas could escape into the boiler room. Gas samples taken from the magazine did not show any carbon monoxide, hydrogen, nor methan, and only .05 per cent carbon dioxide and 20 per cent oxygen. Similar tests were repeated under likewise severe conditions, and finally it was agreed that there was no danger with this boiler.

One disadvantage of coke—namely, the necessity of large storage space or the delivery of the year's fuel

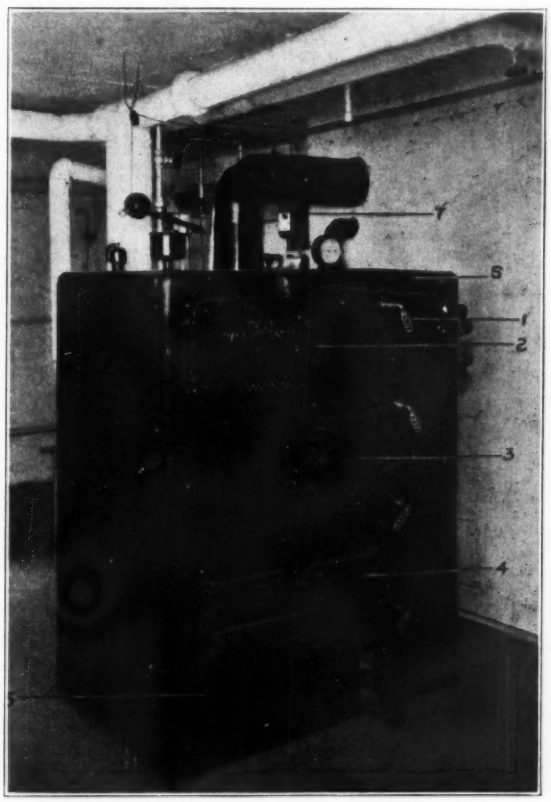


Fig. 4.—Front view of the boiler. T, is the thermostat motor; S, is the secondary air control; 1, temperature control; 2, firing door; 3, for starting fire; 4, special inspection door above grate; and 5, ash pit door

supply in two or three shipments—cannot, of course, be avoided.

The magazine coke boiler can, without change, be used for the firing of stove or egg anthracite, in which case the performance charts remain about the same, but the firing periods are considerably longer. We emphasize the fact that good anthracite is an excellent fuel for this type of boiler.

By inserting auxiliary grate supports, an inclined specially designed grate, and a water baffle, peacoal or buckwheat can be burned satisfactorily in that construction. An oil burner can also be used in that connection.

How to Select the Proper Size of Boiler

In our trade there is great confusion at present about how to select the proper boiler size and how to arrange for the necessary boiler reserve, which usually is taken between 100 and 150 per cent. It therefore may be appropriate to present a little example. Suppose the direct radiation (or its equivalent) which will be installed in the house is 1,000 sq. ft. Then we figure, under normal

conditions, and for the average home, 25 per cent for heat loss of the pipe and 25 per cent for boiler reserve. For instance:

	Square Feet
Installed direct radiation	1,000
Add 25 per cent for heat loss of pipes	250
	1,250
Plus 25 per cent for boiler reserve	312
	1,562

The next larger boiler size is an 8-section magazine boiler of 1,550 square feet capacity.

For all practical cases, and in connection with the conservative rating of these boilers, the calculation can be still more simplified as follows:

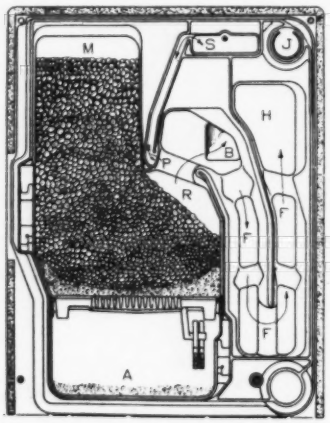


Fig. 5.—Cross section view of boiler showing various features including the magazine for coke storage

	Square Feet
Direct radiation (or its equivalent)	1,000
Plus 50 per cent for pipe losses and reserve	500
	1,500

The next larger size is the 8-section boiler with 1,550 square feet capacity, which should be selected.

Method of Determining Performance Curves and Boiler Testing

Performance curves have been obtained with a boiler test equipment, not usually found in American practice. All steam generated in the boiler is delivered to the condenser, from which all condensate returns to the boiler. The condensation is effected by cooling water, the quantity of which and its temperature rise, are observed. As the heat loss of the equipment is known from previous test, the actual heat output of the boiler can be calculated from the quantity of water and its rise in temperature. This product, divided by the theoretical heat value of the coal used, gives the direct efficiency of the boiler. On the other hand, Mono readings, stack gas temperatures, and certain other indications, permit the calculation of all heat losses of the boiler, which makes it possible to determine its indirect efficiency.

This method is not only independent of all changes in the condition of the fire, steam pressure, water line, etc., but works almost automatically and eliminates human error. Each test checks itself, because the direct and indirect efficiency must coincide within reasonable limits.

A Coke Burning Boiler Installed

The writer has personally studied several of these boilers in operation during the last winter season and feels that they are a complete success and a great labor saving device. A description of one of these installations is here given.

Fig. 1 shows a home in which a coke-burning boiler installation was made, being a ten room house. The boiler is a six section boiler, rated at a capacity of 1,000 sq. ft. of radiation. The heating system is a one pipe steam system. Fig. 2 shows a diagram of the piping. Once each day the furnace is filled with stove-sized coke. For average winter weather no further attention is required. The boiler is controlled by a thermostat, which keeps the rooms at a constant temperature throughout the day. Fig. 3 shows a rear view of the boiler with heat interchanger for the hot water supply (H. W.) and storage tank for hot water (K). Fig. 4 shows a front view of the boiler which is finished in two-tone baked enamel. As the coke fuel used contains only six to seven per cent ash, it is only necessary to remove ashes once a week. Before removing the ashes a small water spray in the ash pit dampens the ashes and this procedure makes the process of ash removal a dustless one. When the weather has been mild this boiler has burned continually for two to three days without any attention whatsoever. A temperature chart from a recording thermometer was installed in the rooms for test purposes, and showed clearly how uniform the temperature can be kept by thermostatic control, being 70 degrees Fahr. both day and night.

Many of these boilers have been installed during the last heating season and all have proven very successful and have fulfilled all of the expectations of those who decided to install this type of boiler. It is interesting to note the reasons which have led up to the decisions to install a coke burning boiler rather than a boiler of the ordinary type.

As has been stated in the introduction, the modern idea of convenience is an outstanding feature to every one today. Many of us, however, cannot afford to pay for all the conveniences we might enjoy unless we were to live beyond our means. The ideal choice is then to have convenience plus economy. The coke boiler has both of these requirements. No special boiler is necessary, but a boiler so designed which will utilize all the advantages of coke is desirable, as it makes the best fuel better.

◆

Absolute Zero

The announcement that the absolute zero of temperature has been approached to within a single degree tells of a victory which has been in sight for a very long time. . . . At absolute zero temperature there is of course no flow of heat from the material because, according to the second law of thermodynamics, heat can flow only from a hotter body to a colder one, and there can be no "colder" body than one having zero temperature. Metals appear to lose entirely their ability to resist the flow of electric current, and to become perfect conductors.—*Mechanical Engineering.*

Disguising *the* Vent Stacks

Numerous vent stacks through roof need not mar the beauty of a building

Here is a description of how one plumbing contractor in Lima, Ohio, solved the problem

Fig. 1.—Six individual stacks are used in this building to meet the venting requirements. The problem which we are presenting to our readers is to find the stacks extending through the roof. The solution is given in the article

THE building in question was designed to be a thing of beauty. This is exemplified by the general exterior view and the view of the bathroom. Furthermore, it was built on a 9½-acre lot so nothing about the house could be concealed by adjacent buildings. The appearance of the rear was a factor of practically as great importance as the appearance of the front since the grounds were to be landscaped and the plans called for a swimming pool to be located immediately to the rear of the building, with fountains and electric lighting effects.

The minimum number of stacks called for, for adequate venting, were six. To extend all six through the roof, individually, was out of the question since they were located in various parts of the house, both in the front and in the rear. The master's bathroom alone, shown in the accompanying view, required two vent stacks. In addition, there is a guest's bath with tub, closet, lavatory and shower over tub; a maid's bath on the third floor with closet, lavatory and tub; a toilet room on first floor equipped with closet and lavatory; the ordinary kitchen facilities; and a toilet room in the basement with closet, lavatories and showers for the use of the bathers from the pool, all of which were served by the remaining four vents.

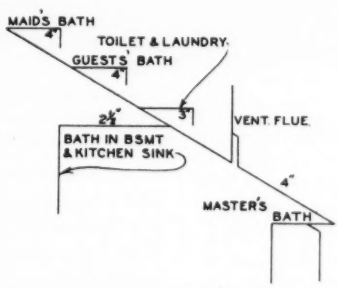


Fig. 2.—Diagram of the method employed in connecting the six vent stacks to one main horizontal line with subsequent venting in one stack through roof

The Solution

The above indicates the problem. The following, briefly, summarizes the solution as stated by C. C. Cowles of the Lima Plumbing and Heating Co., Lima, Ohio, which made the installation: "I could not have the stacks run through the roof where they would have shown, consequently, I gathered the entire vent system together in the attic and carried it through a brick vent flue ending just on the level with the flue." The method of gathering all of the stacks together in the attic is illustrated in Fig. 2. The brick vent flue in which the main vent was concealed is seen in the exterior view of the building as the flue to the left of the right hand chimney. A pyramid shape on the top characterizes it. It contains only one vent which is 5 inches in diameter. The sizes of the branch vents are indicated in the sketch. To quote Mr. Cowles further: "The top of the attic is clear for pipe space and a system of vent lines extend from the front of the house to the rear with an increased line going up in the vent flue

Fig. 3.—View of the master's bathroom which required two stacks for venting

which was built for the purpose. The branch vents were connected to the main line at convenient points."

Additional interesting features of the house are as follows: The city water is provided for flushing the closets, for use in the sprinkling system, for use in the pool and for cooking and drinking purposes. Soft water is collected in a cistern under the sun porch and distributed under pressure by an electric pumping outfit. Hot water service is supplied by a heater connected to the heating boiler supplemented by electric heaters.

Thawing Frozen Plumbing

By W. H. WILSON

AS ANYONE who has had experience in the matter will tell you, there is more to the job of thawing out frozen piping in residence installations than would appear from a casual consideration of the subject. The work is simplified when it is carried on under conditions which have been brought back to above or near freezing temperatures. This article considers a thawing job where it was possible to get some heat in the building while the work was going on. Even under these conditions judgment must be used. For instance, the first impulse is to start a roaring fire in the boiler. This is disastrous, as explained in the article, if the coil pipe to the hot water supply is frozen, since all of the ice does not thaw at the same instant and where it does thaw, steam is formed with resultant terrific pressure and possible explosion. The same applies to the boiler itself.

Another tiem which must be considered is that closet bowls are porcelain, or pottery, having the property of being brittle. Rapid changes of temperature, due to the application of hot water, are as damaging as freezing.

Where thawing is carried on under freezing conditions increased difficulties are encountered. Recently an instance was called to our attention where one section of a garage radiator was frozen. The first thing which was done was to increase the intensity of the fire in the boiler and a considerable steam pressure was built up which forced the steam into the supply piping. However, the condensation collected at the point where the section was frozen and that too froze. It was but a very short time when the entire garage radiator and piping was frozen solid. Then, common sense methods were employed.

Some years ago I received a telephone call, from a friend of mine, stating that he had agreed to look after his neighbor's house while he and his family went away for a week, during the Christmas holidays.

During this week the weather had been, at times, considerably below the freezing point, and he further stated that he had shut the water off, and after a few explanations as to what had happened, requested me to come over and see what could be done to get the plumbing in order.

Taking two pipe wrenches, I went over, expecting to find some damaged plumbing fixtures and bursted pipe. My time was limited and for other reasons it was essential to get the job done as soon as possible.

The house was a story and a half cottage, of frame construction. The boiler contained a 1-in. pipe coil to furnish hot water to a thirty gallon tank in the basement.

The water had been shut off at the underground shut-off and no draining of the plumbing fixtures had been done.

The first thing was to make a hasty inspection of the pipe and plumbing fixtures, and for a wonder nothing seemed to have been damaged.

The next step was to disconnect the union on the ¾-inch water supply line, a short distance above the floor line, at the underground water shut-off. Turning on the water at this point showed that the water was alright there and it was a simple matter to fill a dish pan with water and set it on the gas plate, near the laundry tubs, and heat the water with the gas flame.

In thawing out pipes in a home it is necessary to have hot water and plenty of it.

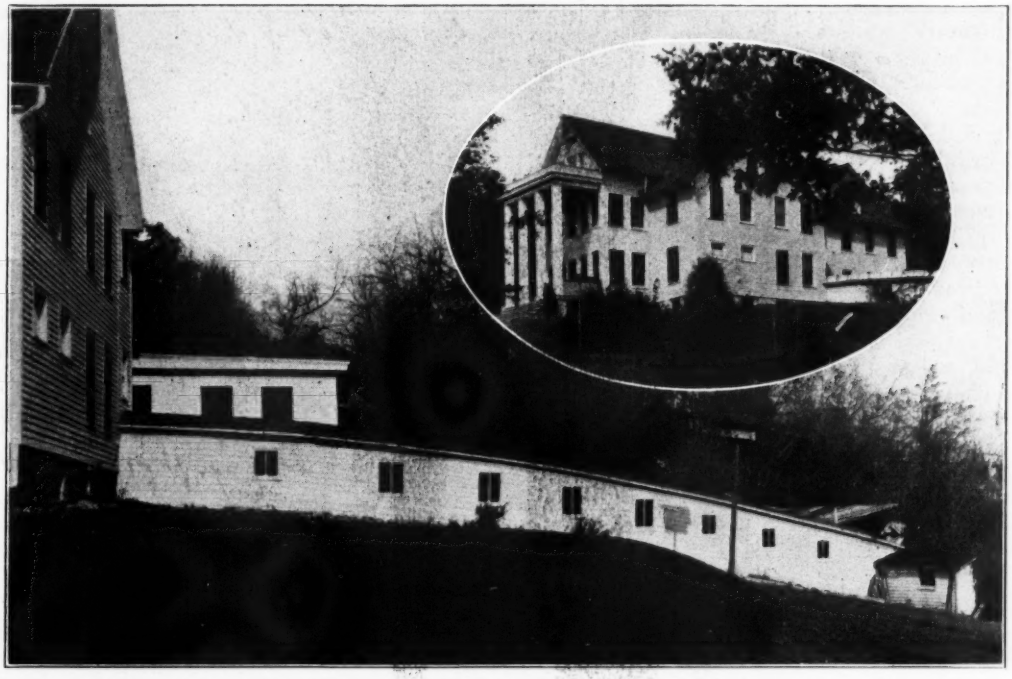
Next the 1-in. furnace coil was disconnected at both unions, ashes shaken out of the furnace and the furnace pipe coil was thawed out, by using rags soaked with hot water. Special care was taken to see that this pipe coil was thawed out completely from end to end, and this verified by pouring water in the top pipe until it flowed out the bottom pipe.

Attention was next directed to the thirty gallon tank, which apparently had not frozen solid. After removing the blow-off faucet, a liberal amount of hot water poured over the tank soon made it possible, after replacing the blow-off faucet and connecting the union near the underground water shut-off, to run water through the pipe and into the tank. The pipe coil was then connected and after being assured that everything was clear from the furnace pipe coil through the tank to the underground water supply pipe, a fire was started in the boiler and the heating plant, true to its selling points, brought up the room temperature rapidly.

While the plant was warming the house, the traps on the laundry tubs, kitchen sink, bathtub and wash basin were the next to be thawed out by using rags soaked in hot water, also an application of hot water was used on the closet bend (lead pipe) and the lower part of the bath tub drain trap, which was exposed under the open joist ceiling in the basement. The next move was to apply a rag soaked in hot water to the cover of the bath tub drum trap in the bath room, remove the cover and pour hot water down the drum trap until the drain pipe was clear. At this time water began to run from the faucets of the wash basin and the kitchen sink, as the heat of the room was beginning to help.

Attention was then directed to the closet, which was of the low down tank pattern. Hot water was poured in the flush tank, which was frozen solid, and warm, not hot, water was poured in the bowl. As the rooms and basement were now warm from the heat of the furnace, the closet was soon in order.

A close inspection showed that no damage had been done, which was indeed good news, and all that was left to do was to pick up the two pipe wrenches and go home.



The insert shows a view of the home described in this article, wherein air from limestone caverns, over which the building stands, is circulated. The long shed-like structure is the air duct which runs from the air shaft in the ground to the plenum chamber in the basement of the house

Conditions Home *with* Cave Air

By W. W. STEVENS

IN A publication under date of May 16, 1908, we find the following news item which has since become history: "Although we have been unable to authenticate the 2-mile flight of the Wright brothers' new aeroplane, nevertheless these two secretive gentlemen are apparently experimenting with success at their old camping ground near Kitty Hawk, on the coast of North Carolina. According to the newspaper dispatches they are making short flights almost daily for the purpose of testing a new steering device. On the 8th instant the longest of ten flights made is reported to have been about 1½ miles in about 2 minutes."

In the same issue, on a following page, is an item which also has since become history, but in this case it is such in the light of progress in air conditioning. In part, the item reads, "On the hottest day in the summer the interior of the house is cool and comfortable at 70 deg. Fahr. The humidity is always normal as it is regulated for this temperature."

While this article has nothing to do with aviation, it is interesting to note that a close similarity exists between the modern science of aviation and the modern science of air conditioning in age, development, and effect on human lives from the standpoint of comfort, convenience and efficiency. As a matter of fact the analogy might be extended to matters pertaining to health where in air conditioning practically every installation constitutes a health measure. Certainly the influences of the two sciences are equally far-reaching.

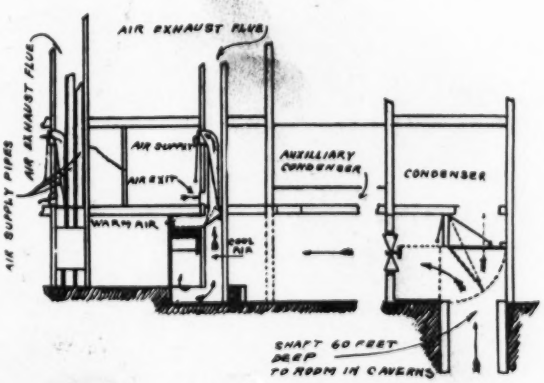


Fig. 1—Elevation of building through section A-A showing arrangement for controlling room temperature by mixing the air supplies. The exhaust system is also illustrated

As indicated, air conditioning in homes is not new. In Page County, Virginia, a mile from the town of Luray, a home was built in 1901 in which air conditioning features were incorporated. The system has been in operation for almost thirty

years and its unique features make it as interesting an installation today as it was when made. The house was built, and is owned and occupied by T. C. Northcott, who formerly was a heating and ventilating engineer. For some time previous to the building of his house it had been his purpose to secure property on which could be built a house embodying theories which he had worked out as a result of his heating and ventilating experience. One of these theories was that air filtered through limestone is exceptionally healthful and aseptic in the very highest degree.

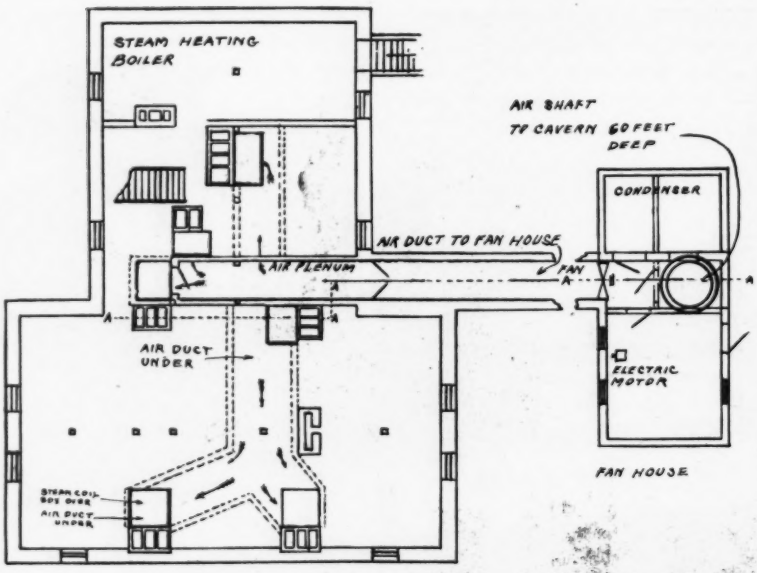


Fig. 2.—Basement plan of house showing how the cave air is distributed through the various ducts. By-passes provide means whereby the air may be taken into the rooms without passing over the steam coils

Air Conditioning System Described

The house in question is built on top of a hill above the Caverns of Luray. These caverns consist of nearly three miles of underground passages containing many large rooms. The underlying principle of the installation is the distribution of the cave air throughout the building. The difference between the installation and the ordinary modern installation is that in this case the location of the house was dependent upon, or was built about, the air conditioning system in contrast to the present practice of applying the system to the

Scene in one of the passages known in the caverns as the "Swiss Cottage Way." The height of the ceiling is 25 ft. in that part of the cave directly under the air shaft

The air in the caverns fluctuates in temperature only two degrees throughout the year, from 54 to 56 deg. Fahr. When desirable, the air taken into the house is heated by steam coils in the basement, or by the sun, in passing through the upper section of the out-door duct, which has a metal roof

building with definite requirements imposed upon it. The house was located in relation to the cavern and a survey was run in to determine the proper location for a shaft to be sunk into the cavern. The shaft was made 5 ft. in diameter and at that point it is 35 ft. from the surface of the ground to the cavern ceiling. From the ceiling to the floor it is 25 ft. so that the total depth is 60 ft. Over the opening of the shaft a fan house was built, as shown in Fig. 1, and from here to the building, a distance of 100 ft., a connecting passage was made. This is indicated in Fig. 2, the plan of the basement, and is shown in Photo on top of page 43. This passage was divided horizontally to form two separate ducts, the upper portion being constructed of metal and the lower portion being made of wood. By using the upper, metal, duct the air is warmed slightly by the heat from the sun when possible and desirable. The lower chamber of the duct is used when it is desirable to have the air reach the house as it comes from the cave. All of the air goes into a large plenum chamber in the basement where it is possible to mix the air from the two ducts. From here it flows up through smaller shafts to the various rooms in the house. At the base of each of these smaller shafts is a steam coil, which is heated in winter. A valve is so arranged to each ventilator shaft exit that the warm or cold air can be turned on at will. The cave air is blown into the building at the rate of 8,000 cu. ft. per minute which provides a complete air change every four minutes. It has

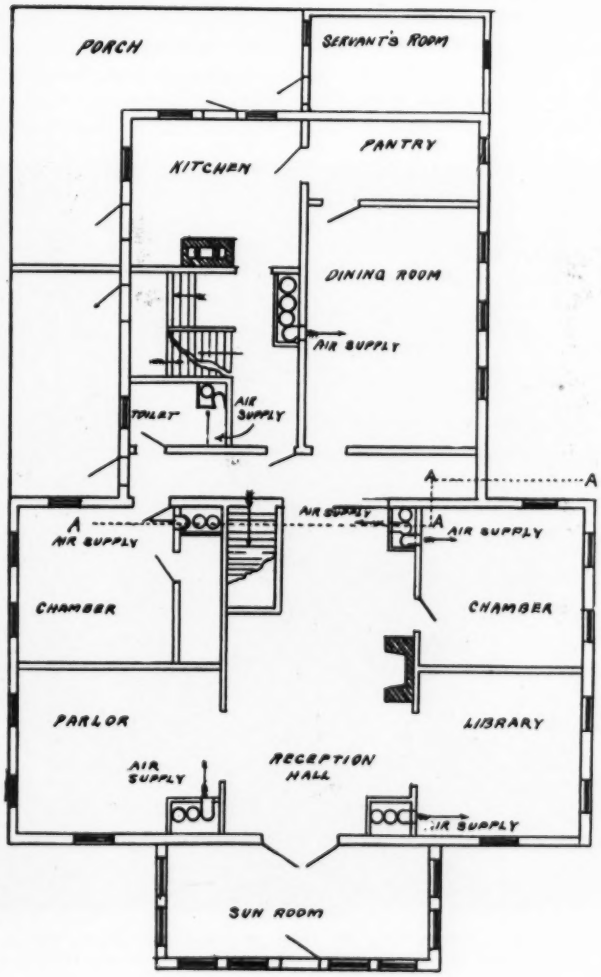


Fig. 3.—The arrangement of the air supply outlets shown on this first floor plan provides complete circulation of air. It is estimated that there is one air change every four minutes

been stated that there is no draft to be felt in the house at any time or at any place regardless of this rapid change of air, and that the air flows rather than blows.

The air is forced into the house by a 5-hp. electric motor of which 3 hp. is all that is required. The fan is of the propeller type, 42 inches in diameter, and runs at a speed of from 400 to 600 r.p.m. The humidity is controlled by means of the condenser shown in the basement plan and elevation. As the air comes from the shaft it may be thrown directly to the passage leading to the house, or by means of a bypass valve be sent through a condensing chamber before it reaches the fan. It is here that the relative humidity is regulated. Observations over a considerable length of time and number of seasons have shown that the air in the caverns fluctuates in temperature only two degrees in the year, from 54 to 56 deg. Fahr., with a fairly constant relative humidity of 87 per cent, the small variation in temperature being the cause of this constancy.

This is a view of what is known as "Dream Lake." The large amount of moisture in the caves keeps the relative humidity of the air fairly constant at about 87 per cent. When this is taken into the house and heated to room temperature, the relative humidity is lowered so as to be well within the comfort zone

Absolute and Relative Humidity

There are two ways of expressing humidity, as relative and as absolute. Relative humidity is the ratio of the amount of moisture contained in the air at a certain temperature to the amount of moisture which the air could contain at that temperature under saturated conditions, volume being constant. This, of course, is always expressed in per cent. As an example, at 80 deg. Fahr. 1 cu. ft. of air will contain, when saturated, approximately 11 grains of water vapor. If the amount of water vapor in a sample of air at 80 deg. Fahr. and 1 cu. ft. in volume is 5½ grains, then the relative humidity under these conditions is 50 per cent. Absolute humidity is the actual amount of water vapor in the air regardless of the temperature. Unless some of the moisture is removed by condensation the absolute humidity remains constant while relative humidity varies with the temperature.

With this as a basis, let us consider what happens when the cave air is taken into the house. As was stated,

(Continued on Page 158)

Bacteriological tests in the cavern have shown the air to be remarkably pure. This is attributed to the lack of dust and the filtering through small pores in the limestone

PLUMBING & HEATING MERCHANDISING

Why the Plumbing and Heating Contractor *should handle oil burners*

A demonstration, in terms of actual experience, of the sound selling tactics employed by a firm in our field

THE best answer to why the plumbing and heating contractor should handle oil burners is contained in the experiences of those contractors who have taken on oil burners. They furnish satisfactory service to the customer, which is a matter of supreme importance to the manufacturer, who cannot afford to have centers of dissatisfaction building up resistance to his sales efforts.

Below we give, largely in the words of one of the men connected with the company, the experiences and the policies of the R. C. Beverley Heating Co., of Richmond, Va.

Investigation First

"In the spring of 1923 we decided to investigate the domestic fuel oil burner field with the view to taking the agency for such equipment. At that time only one automatic burner had been installed in Richmond. Therefore, it was necessary that we look into other fields in order to get information that we were after. Washington, D. C., and Norfolk, Va., had quite a few installations which had been operating over a period of a year or so and it was in these two cities that we made most of our investigations. Finally after interviewing owners of domestic

Window display of Richmond firm, successful in selling oil burners

burners and investigating manufacturers of such burners we decided to accept the agency for the burner we now handle.

"In the summer of 1923 we installed seventeen burners, and our policy from the first installation was to render a service that would reflect on the future sale of this type of equipment. Our mechanics were trained in such a way that they would understand just how to handle any service trouble without any unnecessary delay. We keep a record of every service call made, the service man making out his report before leaving the job. These reports are turned in to the office and filed for future reference. Our principal sales argument has been based on the service that we render and we believe that has been the result of our success. We have installed two hundred burners and every owner can truthfully vouch for the good service that we render. Therefore, we always present our prospects with a list of users, asking them to personally call these users about our service.

Sample card taken from files at random. It shows information compiled by surveyors prior to oil burner selling campaign

Name S. R. Brame
Address 1620 W. Grace St. Owner ✓ Tenant
Kind of Heat Arco 428 W Hot Water Supply
H. W. ✓ St. Side Arm ✓
H. A. Vpr. Automatic-Kind
Amt. Coal in Bin No coal in bin Range Boiler 30 gal.
Elec. Refrig. None Location Basement
Remarks:

Date 8/6/28 J. T. Hammer Census Taker

NAME General Electric Supply Co | DATE 1/8/29
NO. MACHINE 14982 | TIME ARRIVED 7:43 A.M. | TIME FINISHED 8 A.M.
TROUBLE FOUND Safety out – Ignition failure
HOW CORRECTED Cleaned burner points and assembly
MATERIAL USED None
STACK SAFETY OK | BOILER CONTROL OK | THERMOSTAT OK | FLAME OK
IMPORTANT TO ALWAYS MAKE THESE TEST ON EVERY CALL
DID YOU CLEAN BURNER ASSEMBLY Yes | DID YOU OIL BEARING No | ANY LEAKS No | CLEAN BALL CHECK No
DO YOU THINK MACHINE OPERATING SATISFACTORY WHEN YOU LEFT OK.
REMARKS:

F. E. Rex

Sample of service card on service rendered. Salesmen use these cards to show prospects how company takes care of its customers

Few Service Problems

"There should be few real service problems to confront the dealer today for we feel that the oil burner has developed to the stage where it will, when properly installed in the proper heating plant, give very little trouble. We believe that if proper attention is given to installations few troubles will arise. Each installation should be checked carefully by someone other than the mechanics that install the plant to make sure that every control is functioning properly.

"We have developed along with our oil burner department what you may term a specialties department handling the sale of automatic water heaters and fuel economizers. We have two salesmen in this department handling the sale of this equipment.

"If manufacturers can secure the proper representation in the heating field we think it advisable that the oil burner business should be handled by them, for we have seen so many failures right in our own city of concerns attempting to handle oil burners that had no business whatsoever venturing into this field. The results have been loss of money to them—burners installed at any price just to get them in and later the company closes and the owner is left with no service. This condition exists today and is bad for the oil burner business as a whole. It creates sales resistance.

"We get a good price for our installations and we have never under any circumstances cut our prices to meet competition."

Special Training Pays

Here is an elaboration of the merchandising methods of the company, written by R. H. Griffin, executive manager of the Richmond association:

In the sale of oil burner equipment the R. C. Beverley Heating Co., Inc., of Richmond, Va., has discovered through experience that it pays to employ specially trained men. An experiment of using high school students on a commission basis proved unsuccessful. They were anxious to get commissions, being more interested in the financial advantage than in rendering a real service to prospective customers. They were handicapped by being unable, through insufficient knowledge about the technical end of the oil burner, to explain satisfactorily and with positive assurance the advantages and desirability of such heating in comparison with other forms. Therefore, it was early in the oil burner selling game that the Beverley Heating Company discarded entirely the uncertain element in merchandising and employed a competent engineer specially trained in engineering and saw to it that he attended three of the sales and service schools conducted at the manufacturing plant of the particular burner handled.

This firm, foreseeing the need of having the practical working force equipped also to render service, has sent six of its employes to at least two of the schools conducted by the manufacturer. First hand instruction enabled these mechanics to learn all of the essential characteristics of the burner and placed them in a most desirable position to render competent oil burner service. With such a number qualified to perform service, it is practically impossible for a customer call to be delayed in being answered. Promptness and satisfaction have gone a long way in

establishing good will and in increasing business.

Using Record of Service

In every attempted sale the salesman uses an inspection card to show the prospective customer. This is a sample carried to appeal to the prospect's sense of thoroughness on the part of the firm. It is graphic and convincing evidence of service. It shows that the oil burner dealer is doing something besides putting an automatic heating device in his residence.

This card gives the name of the customer and the date of service rendered. It gives the serial number of the burner for identification, the time of arrival of the mechanic and his departure after finishing. There is shown on the card a description of the trouble found and a detailed statement of how it was corrected. Materials used and all data of work performed are contained on the card. It is signed by the mechanic who returns it to the firm to be recorded in an indexed file. Thus a complete record is kept of every service transaction. When an account is rendered, the customer may be in doubt as to what the charges are for; by this system every detail is recorded.

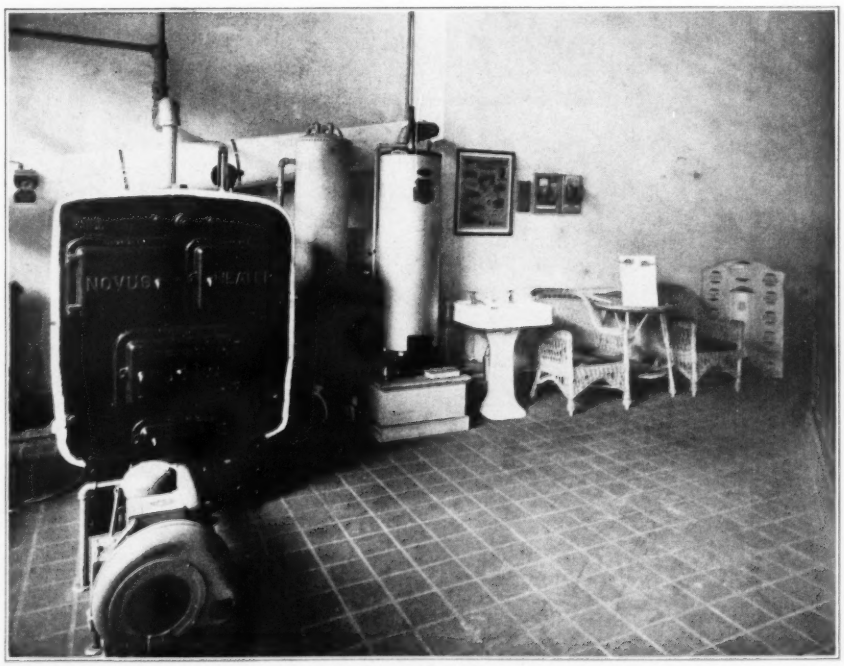
In going after prospects this firm used a crew of recommended young men to canvass the best residential sections. The city was zoned off to them and they went from house to house and announced, after ascertaining if the party responding to the doorbell was the owner, that they were making a survey of heating systems and would request certain information. This information usually was readily given and put down on cards carried for the purpose. These cards gave the name and address, kind of heating system now used, quantity of coal in the bin, whether electric refrigeration was in the house and whether there was a range boiler in connection with the heating plant.

Locating Prospects

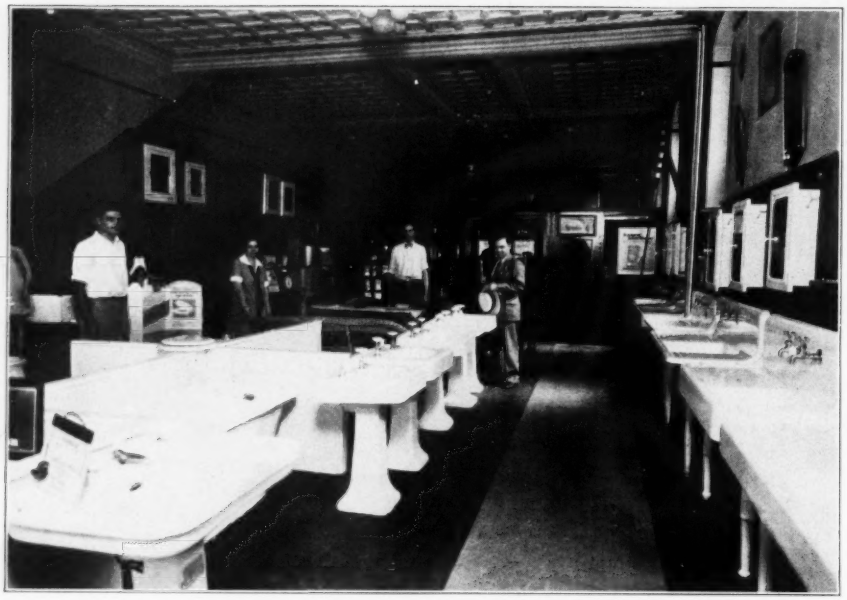
These cards were turned in daily and analyzed. If a prospect had a heating system that could be adapted to oil burner equipment and had an electric refrigerator, he was a good prospect. Ownership of the latter indicated ability to buy and an appreciation for the modern conveniences. If the coal bin was empty naturally the prospect would more readily listen to reasons why an oil burner should be installed immediately. So after this city campaign was over, the firm was able to check some good sales traceable to this system. It was a sort of market analysis, and it certainly proved worth while.

The sale of oil burner equipment is recognized by this firm as a combination heating and merchandising problem. Some furnaces in old homes may not be adaptable to oil burners. A frank statement of this fact is appreciated by the owner, who then has a greater confidence in the salesman and will usually hear a sales talk for installing a new boiler in connection with an oil burner. A sale is not made for the sake of a sale. The customer must be satisfied and the heating plant must be scientifically capable of performing its task.

This firm has been selling oil burners since 1923, and the methods used have proved successful, for both the contracting firm and the manufacturer.



Salesroom of Richmond firm, showing oil burner connected for demonstration purposes



Interior of Pettit-Galloway store, Little Rock. This view is used for the back cover of their complete retail catalog

Moulding Public Opinion

EXPERTS in marketing say that the problem faced by American business is the creation in the public mind of new desires for the possession of those things which raise living standards. That problem, of course, comes to a focus in the retailer's selling efforts. Supposing a certain amount of desire to have been created for the products which he handles, it is he who must make it effective and bring it to the point of action.

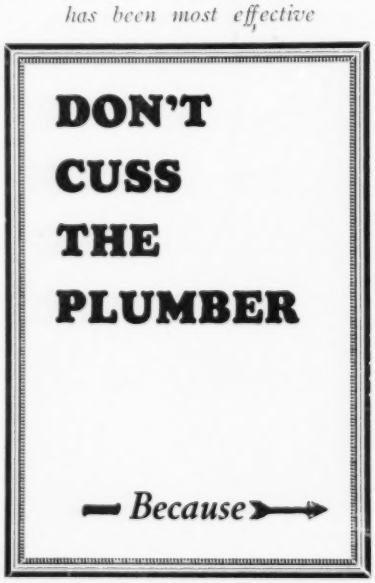
It becomes true, therefore, that it will depend upon the retailers in any community or city as to how much consideration the people of that community will give to their products. The retailer who does the best job of moulding public opinion is the one who will reap the greatest benefit.

The firm of Pettit-Galloway Company of 114 E. 7th street, Little Rock, Ark., is an outstanding example of the good a firm can do not only for itself, but for its industry at large, with a well-rounded campaign of advertising and publicity.

Changing Public Opinion

One of the outstanding examples of the success of Pettit & Galloway's efforts is in connection with the use of car cards some years ago. C. L. Jones, manager of the company, says that through that type of advertising the company changed the mind of the public from the old flat rim sink to a better type. Each car card featured beautiful illustrations of sinks furnished by the manufacturer, and the result to the company itself was the sale of many of the newer types of sinks, and, of course, the strengthening of the idea that in selling, fixtures were not to be taken for granted but ought to be studied for style and general fitness.

First page of unique circular which has been most effective



Probably the most unusual advertising effort made by the company, and one which indicates a keen realization of the possibilities of advertising and publicity, was a four-page circular. The first page of that circular is reprinted in these pages. On that first page appeared the words "Don't cuss the plumber" and at the bottom of the page the word "Because" with an arrow indicating that the page was to be turned.

The two-page spread which formed the interior of the circular

carried on from the word "Because" with four statements as follows:

"The Plumber Is Your Best Friend."

"Good Plumbing Pays Big Dividends."

"Best Work Is Least Expensive in the Long Run."

"It Is Not the First Cost but the Cost of Upkeep That Counts."

On the third page there was reproduced an article which had appeared in Collier's for the week of October 1, 1927, written by Roger B. Whitman.

This was a thoroughly comprehensive view, by a layman, of the plumbing and heating needs of the home and the article started off with this statement: "Heat, plumbing and light are about as essential as a roof, and they should be in mind from the very beginning of the planning, but, like the other parts of a house, they can be cheap or expensive, you cannot be sure you are getting your money's worth unless you know something about them."

The author then went on to indicate that only the best ought to go into the home and the following statement was placed by the Pettit-Galloway Co. in a prominent position on the last page:

"Buy things that won't give trouble; things that won't need refinishing and repairing every few years; things that are permanent and that won't cost anything to keep up. Then you get real economy."

The article was very sound in its advice to spend the money on good fixtures rather than on "fancy finish." That circular has been in use by the company since the article appeared in October, 1927, a supply being kept on hand all the time and used whenever possible.

Just above the signature of the company on the last page of this circular, the company has added this brief message: "We fully endorse all that Mr. Whitman recommends. It is to your interest to select a firm long established in the plumbing and heating business and whose reputation and guarantee means something to do your work."

"HEATING SYSTEMS THAT HEAT"

PETTIT-GALLOWAY CO.
PLUMBING AND HEATING
114 E. SEVENTH ST., LITTLE ROCK, ARK.

Mr. E. O. Bagley,
3800 Hillroad,
Little Rock, Arkansas.
Dear Sir:

You have been too good a customer to stay away so long.

This is perhaps our fault. Naturally, in our big organization - all human - some mistakes are made.

Ever since our beginning, the policy of PETTIT-GALLOWAY COMPANY has been that our customers must be satisfied or we never can be.

You are valuable to us as a customer. That's why we will go the limit to retain your friendship.

It is not often that we lose a good customer and when we do it worries us.

Won't you please turn this sheet over and tell us what the trouble is? Don't mince words. Give it to us straight. We consider our customers our friends and expect them to be frank with us.

The stamped envelope will make an answer convenient.

Cordially yours,
PETTIT-GALLOWAY COMPANY.
(Signed) C. L. Jones
Manager

C L Jones
H S

The bigger the firm the better the service and prices.

An Effective Circular

As Mr. Jones says: "That circular is effective in holding customers. It is also always sent to live prospects and they figure that we know something about the matter or we would not see the value of this sort of material, not produced in our own ranks.

"We use the circular also when we are talking personally with the prospect and usually send him home with a copy of the magazine in which the article originally appeared. And of course we never know how many besides himself get a chance to read that copy before it comes back to us. The great value of the material lies in the fact that here are the views of a man who seems to have gone into the matter thoroughly and who is not interested directly in the sale of plumbing and heating material. That makes for conviction in the mind of the man who reads it."

Usually the direct mail material which is sent out by a retailer is like the piece just mentioned. When, therefore, a firm like Pettit-Galloway publishes a small catalog such as the one which they have mailed under the title "Modern Plumbing and Heating," it naturally is a great prestige winner. Here in eighty-two pages the prospect or customer has a complete view of plumbing and heating material, with illustrations of every type which the company recommends. The catalog is, in fact, a liberal education in plumbing and heating materials and assuredly prepares the ground for the selling talks of the Pettit-Galloway representative.

On the front cover, underneath the title, appeared two lines of type reading as follows:

"Heating Systems That Heat."

There is a foreword which explains the purpose of the catalog to illustrate for the public those fixtures which experience has taught the Pettit-Galloway Company are the most practical. On the second page under the heading, "Our Desire," there is a very fine piece of copy which starts with this thought: "There is dignity, idealism and morality in business. Finally business is the reflection of the thought and the endeavor of the men engaged in it. It is human the same as they are human. Only the best in business can survive.

OUR fair prices help to keep your temper sweet. Our dependable plumbing helps to make your home comfortable. Our polite service makes you like the world you live in.

Pettit-Galloway Company

"Serving The Public Since 1905"

114 E. Seventh St. **Phones 4-0301; 4-2739**

The men who own and operate this business have a 100 per cent desire to do the best plumbing and heating that can possibly be done. We realize fully that you cannot sell the same 'gold brick' to the same man twice."

A Complete Catalog

In like tone the copy continues for the entire page and is aimed of course at winning confidence in the service offered by the company. Then follow about seventy pages of illustrations and descriptive copy of plumbing and heating materials with an alphabetical index at the end.

On the inside of the back cover is a piece of copy which we are reproducing with this article as it seems to be something which any plumbing and heating contractor might use in his endeavor to build prestige and sales.

On the page which faces the inside of the back cover is a short but extremely strong piece of copy under the heading "For Your Reflection." This is what it says:

"When price rules your decision, you are sacrificing the results which you have a right to expect in service, and you lose far more in the end than you thought you were gaining in the beginning."

The back cover of the catalog shows a complete view of the salesroom, made from the same photograph used in connection with this article. Other elements in the advertising campaign of the company have been blotter campaigns and various forms of monthly mailing advertising matter furnished by manufacturers. Last year the company placed three thousand fans in the twenty churches in the city.

General Advertising

There is also a publication which goes to members of women's clubs and in that publication the Pettit-Galloway advertising appears, thus going into the homes of a group of the leading women of the city and occasionally there appears a publicity story over the signature of Mr. Jones. One of them was made up of the same copy which appeared on the last page of the catalog described above.

A further source of business is a monthly letter mailed out by the local building and loan association. This is a four-page circular, the last page of which carries four advertisements, one of which is that of the Pettit-Galloway Company aimed at building confidence among those members of the building and loan association who will sooner or later be putting up their own homes.

The publication which goes to the members of the women's clubs is called "The Home Matron." Four thousand copies of this paper, which was first published as a "budget paper," are sent out each month.

The copy carried by the Pettit-Galloway Company in this publication has to do with repair and remodeling work because, as Mr. Jones says, most of the repair work is ordered by the housewife. A great number of orders have come to them from women who indicated that they had seen the ad in their club paper.

In using newspaper advertising Mr. Jones believes in definite merchandising. That is, he believes in featuring one of the products which they have on display. Shower curtains have proved to be a good drawing card, as have water heaters. Last Christmas great stress was laid upon the fact that a shower bath would make a good Christmas gift and that copy brought sales. In one of the local newspapers, there is a special department called "Where Sylvia Stops and Shops." In this department "Sylvia" writes as having visited the various stores mentioned, and in each a single item is featured.

The blotter campaigns previously mentioned are always shaped with a definite item of merchandising in mind. For instance one of them, which had to do with water heaters, did, as Mr. Jones said, "sell lots of them." In other words, there are certain places where Mr. Jones feels that general copy is correct. There are other times when he feels that the copy must be more direct in dealing with a single product.

Using the Store

Into this well rounded plan of influencing public opinion, Pettit-Galloway store fits perfectly. Mr.

Official Says Comforts Make Ideal Home

Four walls and a roof make a house, but they do not make a home, Curtis L. Jones, treasurer and manager of Pettit-Galloway Company, plumbing experts of Little Rock, located at 114 East Seventh street, declared Friday in an interview.

"A house is never a home until it is provided with conveniences and comforts. And the first thing in convenient, comfortable living is the plumbing.

"In our modern life, plumbing and heating come first. If you doubt this, try to sell or rent a house in which the plumbing is old, the bathroom or kitchen fixtures worn out, and the heating plant broken down. Try to get money for such a house from a person who is looking for a home. You will then see how little value is placed on such a house.

"Then you will realize as never before the true dollar value of first-class plumbing and heating. A house may be well planned, well built, well located, but unless it is well plumbed and well heated few people want it.

"It takes the best of convenience and comforts to make a house a home. And until a house is a home there is little joy in living in it.

"Just as important as the plumbing and heating, however, is the selection of the firm to make the installation. A plumber's business is mostly one of service. It cannot justly or rightfully be measured as you would a pound of nails or a bundle of laths. It has to do with the health and welfare of the whole community. The firm you select should bear the same reputation as you demand of your druggist and other leading merchants of the community. They should be even more responsible than the rank and file, for do they not have to do with the health and comfort of your family?

"Considering the seriousness of the plumbing business, isn't it remarkable how little attention the average person pays to the selection of their plumber? Isn't it a fact that the selection is made, in most cases, with regard to saving a few dollars rather than conserving the health and comfort of the family? Certainly the average man does not seriously consider what he is doing when he peddles his plumbing job all over town, becoming in fact, a party in the cheapening of the labor and equipment which he is having installed, thereby running a risk of endangering the health and comfort of his family for the sake of saving a few dollars on the installation cost. Isn't it a wiser and safer plan to select your plumber on a business basis, taking into consideration such factors as reputation, experience and general standing in the community.

"And be sure to make the selection personally. Do not leave this important matter to someone else. You cannot expect reputable plumbers to meet cut-throat prices. You do not and would not select your doctor or lawyer on a price basis alone. What does a few dollars saved amount to when you consider the risk you may be taking otherwise?"

Jones says: "It is natural for people to think that if you keep up a nice showroom you are worth while to deal with. Quite often, after getting a job, people want to see the fixtures which have been specified and we are able to bring them here to our showroom so that they may see and compare them with other fixtures.

"When we get a contract, we will frequently call personally, or write, pointing out that the fixtures are not up to the minute and suggesting that the prospective home owner drop in to our showroom and see some really modern fixtures." This, naturally, often results in the sale of a better type of fixture to the greater profit of the Pettit-Galloway Company and the greater satisfaction of the customer.

Not only does the company endeavor to widen its circle of prospects and customers, but once work has been done for a person, it is not taken for granted that from that time on that person is to be considered a Pettit-Galloway customer and nothing further done toward keeping him sold. Reproduced with this article is a letter which was sent to inactive accounts and from which Mr. Jones says they received replies to the extent of about fifty per cent and were able to trace directly to the letters a number of nice repair orders.

Across the letter sample which Mr. Jones handed to the DOMESTIC ENGINEERING representative was written a message from an old customer: "I am not doing any building now," he wrote, "but will certainly keep you in mind," which will indicate the standing the company has gained through its consistent advertising and merchandising efforts. Most people will not answer a sales letter unless they intend to buy. Here, the relationship between the company and its customer seems to be such that a good half of them felt it necessary to pay the company the courtesy of an answer.

Undoubtedly all of these activities have had their effect in moulding public opinion in connection with plumbing and heating matters in Little Rock. Certainly they have done Pettit-Galloway Company some good as well as the industry which the company represents as one of the great group of contractors who understand the value of merchandising.

The Master Salesman

takes up the first step in the sale and analyzes the approach, using as his example the actual experience of a reader of this department

AN ENERGETIC reader of this series of sales demonstrations relates his experience in finding himself without any orders on his books—and what he did about it. Here's his story, in his own words:

"I have followed your Master Salesman articles with considerable interest and thought I'd tell you of my first experience in trying to sell, how I handled it, and get your views on how I might have done better than I did.

"Business had slowed down for some time back and it began to get on my nerves. Things were at a standstill. My business is all around plumbing, doing alterations, repairs, overhauling, and occasionally taking a new job when it has a fair profit. Something had to be done and with no work in sight for my two men for the following day, I got down to serious thinking.

"Naturally, my thoughts ran along my usual line of work and I remembered that there was a lot being said about remodeling. I'd read a lot about it in DOMESTIC ENGINEERING, and then when I remembered that it had been mentioned even in one of those big Washington conferences to stabilize business, I felt like I'd hit on something.

"I had a good list of customers; I knew just what their homes had in them. Once I got started listing likely people to call on, I got real excited. When one of the boys came in for some stuff he asked if I'd want him the next morning, because he expected to finish his job that afternoon. I felt so confident that I said: 'You bet I'll need you. You be on hand tomorrow morning.'

"By that time I was ready to go out. I said to myself. 'If the mountain won't come to Mahomet, Mahomet will go to the mountain,' and started out to ring door bells.

"My first call wasn't successful. In fact, I didn't get inside the door. I guess I wasn't prepared with the right remark. Anyway, when I said, 'Good morning, Mrs. Hartley, I'm calling on a few of my old customers to see if they need any plumbing repairs,'" she thanked me for calling and said everything was fine.

"A couple of calls like that brought me up short. I felt that something was wrong. To think it out I dropped into a neighborhood restaurant for my lunch, and I couldn't tell you what I ate. I was thinking too fast to notice what they served me.

"My first call of the afternoon was successful.

"I rang the bell, and waited. 'How do you do, Mrs. Jones,' I said, as soon as the door was opened. 'Oh, how do you do, Mr. Burns,' was her greeting, and I could see that she was wondering what brought me to her door at that hour of the day.

"'Mrs. Jones,' I said, 'I called to see you today with a two-fold purpose in mind.' And there I stopped. I wanted to be invited inside; I didn't think I'd have any success if I tried to do my selling on the doorstep. Besides, part of my plan made it necessary that I get inside. I knew Mrs. Jones quite well; had done work for them for years. But I want to tell you it was mighty hard to keep silent. I wasn't used to this selling and I wanted to go right on and blurt out my whole story. But, somehow, I didn't. I just stood there, looking at her, until she did what I wanted her to do.

"'Won't you come in, Mr. Burns?' she asked.

"I stepped into the living room and sort of waited around until she asked me to sit down. And then and there I jumped into my job of selling with all the enthusiasm I could master. I knew I was only at the beginning.

"'You know, Mrs. Jones,' I said, 'I've always considered it a part of my service, even an obligation, to check up the plumbing in my customers' homes at least once a year. Of course, if I have a call for service, while my journeyman is here he has instructions to keep his eyes open for anything which might need attention, aside from the job he was called for. Most people, you know, don't think of the plumber until they're really in trouble with plumbing. A lot of things can be avoided by slight repairs.

"'Now, I haven't had a call from you for something like a year, so I want to go over your plumbing today and see—'

"'Oh, I'm sure everything is quite all right,' said Mrs. Jones. 'And you've always been prompt when I've needed you.'

"She sure came close to upsetting me there. But I ploughed right ahead. 'Yes, I know, Mrs. Jones. But I think I owe you an inspection of your plumbing. It will cost you nothing, and if I can say that everything is in good shape, why it will be just like your doctor meeting you some place and saying, "Mrs. Jones, you're certainly looking well." It will make you feel comfortable.'

"She made no further objections and I went ahead from basement to attic as if I had nothing else to do. Replaced a couple of washers and, when I was finished, told her what I'd done and then went on to the second reason of my 'two-fold' call. I sold her an extra bathroom outfit which I remembered she had mentioned the last time we made some repairs for her.

"I've been following that plan ever since, and it's working out fine. I hope you'll continue your Master Salesman articles, because I get real help from them."

THE ANALYSIS

When we break down this experience there are many fine angles to it—also some that can be improved. The approach—the first minute or two with the customer, is extremely important.

We liked the phrase, "Mahomet Goes to the Mountain." There is a modern business moral behind the thought that prompted our friend to use that expression. Business no longer comes to the master plumber beyond a small percentage. So that the master plumber who goes out after his business, digging for it daily, is the one who is justly classed the "business builder."

Another point of value, he is a thinker. Not the kind that thinks only of today, but tomorrow, the future as well. He realized that whatever he did, must be of a constructive character. One of the weak points in his experience is that he did not continue thinking of the future of his business through his period of prosperity as he applied thought and study in the early part of his business career. His activity and aggressive hunting for business for the first few months or years of his start in business was what made him. When prosperity came, he unconsciously lapsed into a "well satisfied" attitude that almost cost him a period of business depression.

But he had a hard smack in the face that morning his mechanic's "question about tomorrow" awakened him to a realization of how his business was beginning to slip. Again he was the thinker, organizer, business manager, preparing for tomorrow.

Going further, he laid his plans of "how" to sell. First he got his list together. Then he studied his sales angles. He saw that his personal appearance was right. He is doing real planning now. He brings to mind that, not expecting him or knowing the object of his call, these customers must be made receptive. To create that receptivity, he must use personality; with that create interest in his comments. With this foundation for understanding his policies of selling, let us pass over further descriptive details and analyze this approach in which "personality" is his first move.

When Mrs. Jones came to the door, note carefully his greeting, "he had a two-fold object in calling," without telling her what it was, thus soliciting an invitation to enter and open on a semi-social basis. Very good work. And not saying too much was the best stroke of all. Probably this opening conversation dwelt upon small subjects, but they were establishing a "Comfortable feeling of visiting." Then he fires his second shot. He called to offer a "gratis" service of inspecting the plumbing system. His little parable about the doctor fits well in parallel with his expressed objective. Good work again! (Note, not a word about the extra bathroom yet. Wonderful poise and control in playing his game point by point and only one point at a time.)

He repacked one or two bibbs and later used that free service as a wedge to drive the reason for confidence in him further.

It's hardly necessary to point out the weakness of his first approach. To get the sale started—to make a successful approach—you have either to offer something which you know is of immediate interest to your customer, or you have to create the impression that you have something of interest which you intend to offer later. It was too easy for a customer to say "No" to his weak suggestion that the plumbing system might need some attention, on his first call. He corrected all that when he came to the Jones' home.

Perhaps the most important factor in successful selling is this ability to study your past efforts and detect their weakness in your future selling efforts.

EDITOR'S NOTE—Attention is called to the fact that the Master Salesman is receiving material for his department from the field. If you have a sales problem—either at present—or are wondering why you lost a sale, write the Master Salesman. He will help you.

For Convention Discussion

During the year Mr. King has been asked, repeatedly, by state master plumbers' associations, sanitary engineering groups, state departments of health, and other similar organizations to take part in their programs in speaking on the general subject of the advantages of a state plumbing code and its relation to public health. He was able to accept some of these invitations. However, the majority only could be acknowledged or responded to by lengthy letters. In cases where the response was made in person, a large number of requests were received at Mr. King's office for copies of his talks.

The continued and increasing interest in the subject of a state plumbing code and its relation to public health has manifested itself and we have arranged that Mr. King present, in this article, the essential items under this subject to the end that it may be widely distributed, serve to answer, collectively, the many questions which are asked our readers when supporting plumbing regulations and serve as a basis for discussion at the coming conventions.

The subject is handled from the standpoint of the operation of the Wisconsin regulations which, for some time, have been recognized because of their workability and of the success met in developing their purpose.

An article on state plumbing codes and their relation to modern sanitation and health, suitable for reading at state conventions

By
FRANK R. KING
State Plumbing and Domestic Engineer for Wisconsin

THE Wisconsin state plumbing law and code have been in force for sixteen years and are generally accepted in the industry and by the general public as in accord with good public policy. Through this code all new plumbing installations are subject to state supervision through the enforcement of rules which are recognized as minimum uniform standards, and which are of statewide application. Existing installations, whether in a private or public building, when found defective so as to impair their usefulness or make for a health hazard, may be ordered repaired or replaced by either state or local authorities.

Success with the administration of the laws and results obtained that are beneficial to the general public and plumbing industry alike are far above the expectations of those who sponsored the act. This is largely due to the co-operation given us by plumbers, architects, builders, engineers, public officials, the press and many others interested. There is, of course, room for further improvement, and unless enforcement difficulties arise, Wisconsin within the next few years will have 98 per cent statewide uniformity of plumbing practices, design, materials, methods of construction and supervision.

State and Local Co-ordinated Supervision vs. Local Supervision Only

I am citing these things and similar facts to stimulate comparison between state and local co-ordinated supervision and local supervision only, the adoption of state recommended standards being optional with the municipality.

The history of municipal plumbing regulations and inspection of plumbing in Wisconsin dates back nearly 50 years. That of co-ordinated state and local supervision goes back sixteen years. The state plumbing law was enacted in 1913 and the state plumbing code was adopted by the state board of health on April 5, 1914. Under the law, all cities above 10,000 population are required to employ inspectors of plumbing who shall be practical qualified plumbers. The smaller cities and villages may do so. Such inspectors may be either practical plumbers or other persons competent. Under the supervision of the appointing authority they are required to inspect all plumbing and perform such other duties as may be assigned. Where no local inspector is employed the installations are inspected and supervised as time permits by the state inspectors employed by the state board of health. At the present time there are four state inspectors and upwards of 70 local inspectors. In the smaller municipalities nearly one-half of these inspectors perform additional duties, such as that of building inspector, superintendent of waterworks, city engineer, etc. In most cases the local department of plumbing inspection is self-sustaining from permit fees. State inspection is supported from the license fees from plumbers. License is required in all cities having a population of 3,000 or more and is optional in the smaller places.

The state plumbing code and state inspection are applicable to any building, public or private, rural or urban,

Needs for Plumbing Law

What were the factors that brought about the present state plumbing law, providing for and coordinating state and municipal supervision of plumbing? It was a statewide desire for relief from many ills that had slowly but surely crept into the plumbing business and which were equally objectionable to master and journeyman plumbers, manufacturers and jobbers of plumbing materials, architects, local officials and general public. These factors may be briefly described in the six following paragraphs:

1. Lack of uniformity in plumbing practices as existed 16 years ago in municipal ordinance requirements regulating the installation of plumbing.

2. Lack of statewide uniformity in plumbing materials, and their use, and basic principles governing design and installation.

3. Inadequate ordinance and supervision.

4. Lack of a definite plan to meet future development.

5. Local licenses not recognized in other municipalities and inconsistent with the best interests of the plumber and general public.

6. General chaotic conditions throughout the state.

It is obvious that these conditions were objectionable to all and it was natural that many hoped for and sought relief.

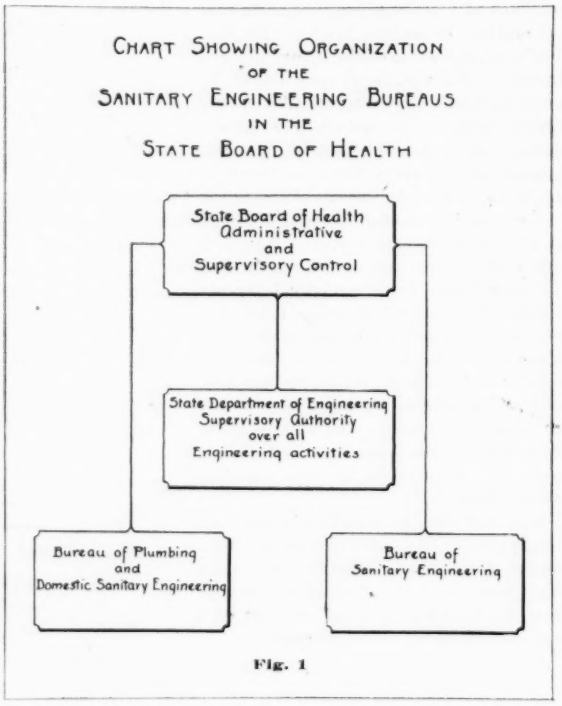


Fig. 1

Reasons for Plumbing Inspection

The work of the plumbing inspector, either state or municipal, consists of supervising the installation of plumbing and drainage for the following purposes:

1. To promote the use of plumbing, to create better living conditions and to disseminate information to that end.

2. To insure durable materials, proper design, and workmanship and satisfactory installations.

3. To insure the elimination of unnecessary materials and help to secure more economical installations.

4. To assist all interested in bringing about these standards.

5. To enforce the provisions of the state plumbing code or local code where adopted in order to insure to the public sanitary, economical, efficient and durable plumbing, drainage and water supply installations.

As an efficient protector of public health, plumbing inspection commends itself to the state or community adopting it. The plumber is assured of no harsh or cumbersome requirements. For the property holder, looking at the question from a purely economical standpoint it may be viewed as a good investment since the cost per inspection is nominal, varying for the average residence from $2 to $4—an amount less than is paid for inspection overhead in the production of a popular priced automobile.

Rejections of installations have steadily declined since state and local inspections were instituted. In 1914 the percentage of rejections by state inspectors was 36 per cent, while in 1928 it was less than 7 per cent. This corresponds favorably with the rejections made by the local inspectors throughout the state for the same year.

The economical phases of standardization, uniformity and simplification of plumbing installations likewise are factors that make for a worth while saving. This, however, is not carried to a point to be inconsistent with durability, service, comfort and proper sanitation.

Standardization is something we all believe in; we all know its value; we all talk about it, the country over. To obtain it, however, many proceed on a basis that does not bring it about. We are sure that this is not the case in Wisconsin under our program relating to plumbing supervision, since we have now better than 95 per cent statewide uniformity in plumbing and related sanitation regulations, including design, materials and supervision.

Proper plumbing has a profound influence on public health, a fact so well established that it should need no further discussion. We in Wisconsin feel that since it is the duty of the state and municipality to promote the general welfare of its citizens, this duty can have no more important field of action than that of securing for every family, urban or rural, a healthful and sanitary home, and for industrial workers safe and sanitary working conditions. Plumbers and citizens of our state are convinced that the state should show the way.

The framing of plumbing regulations, whether federal, state, or local, demands the skill and experience of persons familiar with the theory and practice of plumbing procedures and requirements. It is not to be expected that the governing bodies of our municipalities, especially of the smaller villages and cities, should have the technical knowledge needed or even that they should appreciate its vital importance. We need not be surprised, therefore, to find in many of our smaller municipalities, where no state supervision exists, no plumbing regulations whatever, or else very imperfect regulations and with no adequate means for their enforcement. It is the policy of the state to assist cities and villages in framing local regulations to bring about statewide uni-

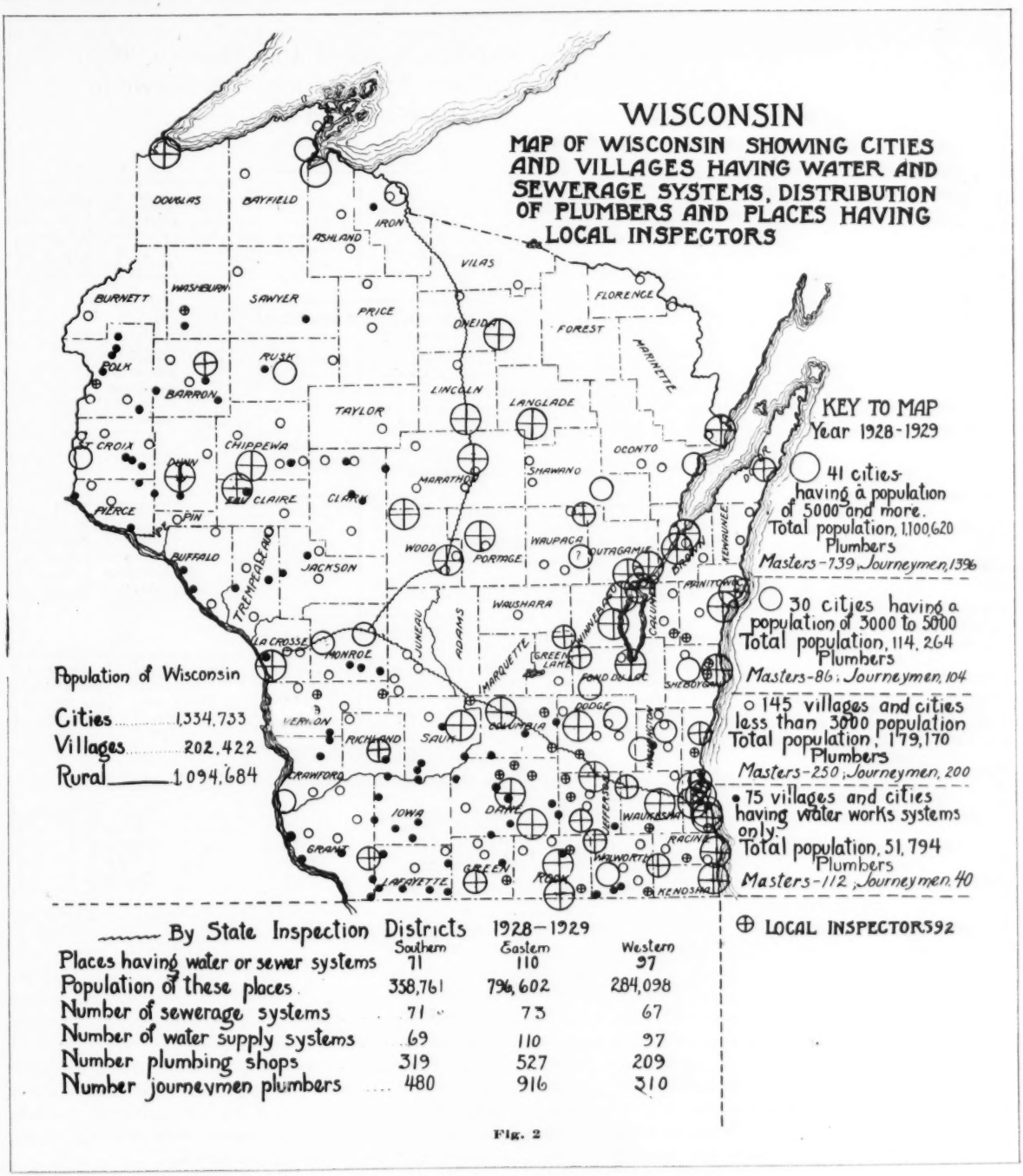


Fig. 2

formity. I submit that it is the duty of every state, with its broad powers, to assist municipalities in the interest of the health of all citizens, by providing minimum, uniform, safe and economical regulations, statewide in application and affecting all types of buildings. It is obvious that cities should be permitted to provide additional regulations as local conditions may warrant, but such additional regulations should not be inconsistent with those prescribed by the state.

Results and Benefits of State Regulation

Among the advantages to be gained by such plumbing regulations the following are the most noteworthy:

1. A more reasonable and safer standard than if framed by the average township, county, village or city.
2. Uniformity of sanitary practices by plumbers, architects, engineers and plumbing inspectors.
3. Better general conditions as to installation and execution of plumbing work, embracing plumbing from the main in the street and within the building, such as private water supply and sewerage systems serving on the border lines of our municipalities or rural communities.

4. Reasonable protection against the indifferent and unscrupulous plumber by state licensing and supervision.

5. Improved comfort and health conditions throughout the entire state.

There is no reason for a plumber, who has proven his competency by examination, not being privileged to work in any municipality in his state without resubmitting to examination as is the practice in states where local licenses are required. Under state examination and licenses this bad feature is eliminated. He is privileged to work anywhere in the state without difficulties providing he installs his work to conform with the state or local regulations. It is my contention that a state plumbing code in the form of suggestions, while of help to municipalities, does not bring about statewide uniformity in design, materials, installations and supervision, hence will not prove as effective as a state code prescribing minimum standards and which permits municipalities to make additional regulations not in conflict with the state code.

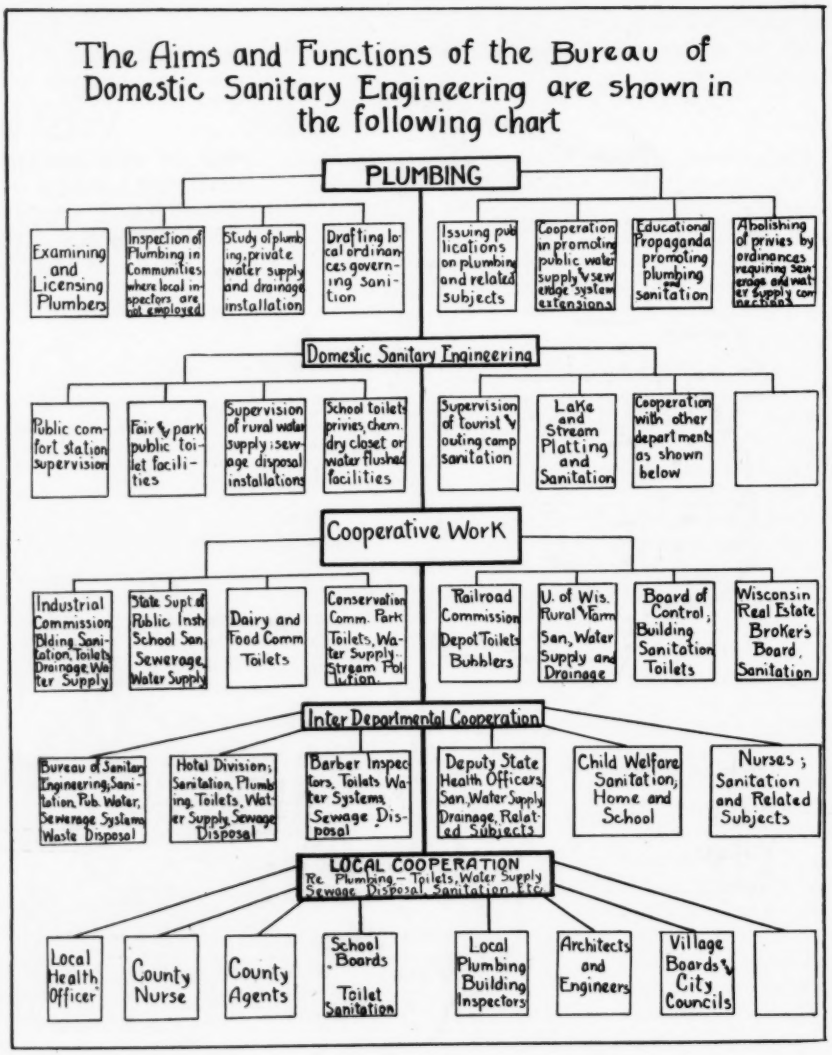

The Aims and Functions of the Bureau of Domestic Sanitary Engineering are shown in the following chart
PLUMBING
Examining and Licensing Plumbers
Inspection of Plumbing in Communities where local inspectors are not employed
Study of plumbing, private water supply and drainage installation
Drafting local ordinances governing Sanitation
Issuing publications on plumbing and related subjects
Cooperation in promoting public water supply, sewerage system extensions
Educational Propaganda promoting plumbing and sanitation
Abolishing of privies by ordinances requiring Sewerage and water supply connections
Domestic Sanitary Engineering
Public comfort station supervision
Fair & park public toilet facilities
Supervision of rural water supply, sewage disposal installations
School toilets privies, chem. dry closet or water flushed facilities
Supervision of tourist & outing camp sanitation
Lake and Stream Platting and Sanitation
Cooperation with other departments as shown below
Cooperative Work
Industrial Commission Bldng Sanitation, Toilets Drainage, Water Supply
State Supt of Public Instr. School San. Sewerage, Water Supply
Dairy and Food Comm. Toilets
Conservation Comm. Park Toilets, Water Supply Stream Pollution
Railroad Commission Depot Toilets Bubblers
U. of Wis. Rural & Farm San., Water Supply and Drainage
Board of Control, Building Sanitation Toilets
Wisconsin Real Estate Broker's Board, Sanitation
Inter Departmental Cooperation
Bureau of Sanitary Engineering, Sanitation, Pub. Water, Sewerage Systems Waste Disposal
Hotel Division; Sanitation, Plumbing, Toilets, Water Supply, Sewage Disposal
Barber Inspectors, Toilets Water Systems, Sewage Disposal
Deputy State Health Officers San, Water Supply Drainage, Related Subjects
Child Welfare Sanitation, Home and School
Nurses; Sanitation and Related Subjects
LOCAL COOPERATION
Re. Plumbing — Toilets, Water Supply Sewage Disposal, Sanitation, Etc.
Local Health Officer
County Nurse
County Agents
School Boards Toilet Sanitation
Local Plumbing Building Inspectors
Architects and Engineers
Village Boards & City Councils

Fig. 3

The science of plumbing and domestic sanitary engineering, although it has reached a well established stage of development, like all other branches of science is still progressing, and with continued investigation new truths may be established. It follows, therefore, that a code of plumbing regulations should be framed in such a way that they may readily be revised and enlarged to meet advances in sanitary science and modern practice. While plumbing as a single factor has a direct relation to good living and health conditions, the related appliances make up the complete picture. When so viewed it ranks first as a health or modern sanitation measure.

Plumbing Defined

By state law or local ordinance we should define plumbing to mean and include:

(a) All piping, fixtures, appliances and appurtenances in connection with the drainage, ventilation or water supply systems within a building and to a point from three to five feet outside the building.

(b) The construction and connection of any drain or waste pipe carrying domestic sewage from a point within three to five feet outside of the foundation walls of any building with the sewer service lateral at the curb or other disposal terminal, including private domestic sewage treatment and disposal systems, and the alteration of any such system, drain or waste pipe, except minor repairs to faucets, valves, pipes and appliances, and the removing of stoppages.

(c) When so provided by local ordinance, the water service piping from a building to the mains in the street, alley or other terminal and the connecting of domestic hot water storage tanks, water softeners and water heaters with the water supply system.

(d) The source and its surroundings from which water is supplied for drinking or domestic purposes, the type of wells, pumps, water piping and plumbing appliances, including the water pressure system, other than municipal systems.

(e) A plumbing and drainage system so designed and vent piping so installed as to keep the air within the system in free circulation and movement, and to prevent with a margin of safety unequal air pressures of such force as might blow, siphon or affect trap seals, or retard the discharge from plumbing fixtures, or permit sewer air to escape into the building.

(f) The construction, installation and maintenance of

"We may not be on the Society Page, Willie, but we're exclusive."

"Exclusive you say, Albert! Why we're in a class by ourselves—just like the Hays Double-Seal Connection."

plumbing in connection with all buildings, including buildings owned by the state or any political subdivision thereof, to make them safe and sanitary and such as to safeguard public health.

To make the foregoing definitions for law or code-making purposes we might add the "twenty basic principles" with which all are familiar, supplementing with detailed specifications and illustrations to make clear the intent and purposes of the regulations.

Features Affecting Cities

In order to be of practical assistance to municipalities, the state board of health of Wisconsin has framed standard ordinances to meet their needs. The law provides that cities of the first, second and third classes having a system of waterworks or sewerage, and villages and cities of the fourth class may by ordinance prescribe rules and regulations for the supervision of plumbing. It provides that plumbing shall not be placed in any building except in accordance with plans approved by the board of public works, where such board exists, or by the board of health or other authority as designated; and that no plumbing shall be done except repairing leaks without a permit upon prescribed conditions.

Provisions Made for Inspection

The law further provides that the council of a city of the first, second or third class or the officers or board in charge shall appoint one or more plumbing inspectors who shall be competent licensed plumbers; that the council of a city of the fourth class (having a population of less than 10,000), and the board of a village may appoint inspectors, who shall be practical plumbers, skilled sanitarians or other competent persons familiar with plumbing. Such inspectors may be removed for cause. The tenure of office under our law and civil service requirements is dependent on good behavior and efficient work, thus being conducive to permanence. Hence the turnover of inspectors is slight—an important feature in building up an efficient, state-wide organization for plumbing supervision. The compensation of such inspectors is fixed by the council or board appointing, and the official appointed becomes a municipal employe subject to the supervision of local authority, removable only for cause after due hearing.

In the smaller communities as noted before, it is invariably the custom to combine the duties of plumbing inspector with those of some other qualified officer or city employe, such as the city engineer, sanitary inspector, or waterworks superintendent. In such case the state inspectors assist and co-operate with the local inspector until he becomes proficient. Thereafter the state inspectors make inspections, or visit the community, only upon request, except as needed to follow up to insure adequate supervision.

The ordinances prepared by the state health department and adopted by our municipalities are so designed as to bring about desirable co-operation between city officials and departments—an important feature.

At the present time over 70 cities and villages have provided for complete or partial local inspection against 3 at the time of the passage of the state plumbing law in 1913. This shows progress made in this direction. It is obvious that many other things follow with it.

These municipalities having provided for local inspection have a total population of approximately 900,000. One hundred ninety-three cities and villages having neither waterworks nor sewer systems, and 223 having such systems have not provided for local inspection. Their population is approximately 732,000. In those municipalities and rural communities a large number of installations are dependent entirely upon state supervision. Thus the population served by state inspection only is about 60 per cent, and by local and some state inspection 40 per cent. However, the percentage of new plumbing installations inspected by local inspectors is about 70 per cent of the work done in the state, while that inspected by the state inspectors is about 20 per cent.

Organization of State Bureau

The personnel of the bureau of plumbing of the state board of health, which is charged with supervision in our state, consists of a director and three assistant state plumbing inspectors. The state is divided into three districts and in each of these districts one state inspector is stationed. He spends five days each week in the field and devotes Saturday to making reports in writing. The orders and recommendations are issued from the main office by the director of the bureau with the approval of the state health officer. The size of each district is determined by the square mile area, population and traveling time. The set-up is such, we believe, as to make for the elimination of red tape and to render worthy public service.

Sanitation supervision in Wisconsin rests with two bureaus, both under the supervision of the state board of health. The aims and functions of these engineering bureaus are in some respects similar. Attention is directed, however, to well established demarkation lines by training, practices and customs between the work of the plumber, domestic sanitary engineer, and sanitary engineer. The demarkation lines and limitations are indeed so apparent that neither should handle or be expected to perform the work of the other unless fitted to do so by training and experience. I believe also that the division of these functions is in accord with modern business policies, that it promotes economy and encourages incentive, co-operation, and a higher grade of public service. Under this arrangement the two bureaus have worked co-operatively in doing work of an overlapping character. Duplication of effort is thus reduced to a minimum. Supervision of plumbing and related sanitation is placed with the bureau of plumbing and domestic sanitary engineering, while that of public water supply and sewerage, industrial waste and stream pollution is under the bureau of sanitary engineering.

From this it may be noted that considerable progress has been made in bringing about uniformity in plumbing practices in our state, which justifies the belief that within ten years we will realize state-wide uniformity and standardization of plumbing and related sanitation requirements.

Important Features to Include in Codes and Publications

It is obvious that, to accomplish this, certain definite procedure must be established and consistently followed. The minimum requirements governing are contained in our state plumbing code and form ordinances furnished

(Continued on Page 128)

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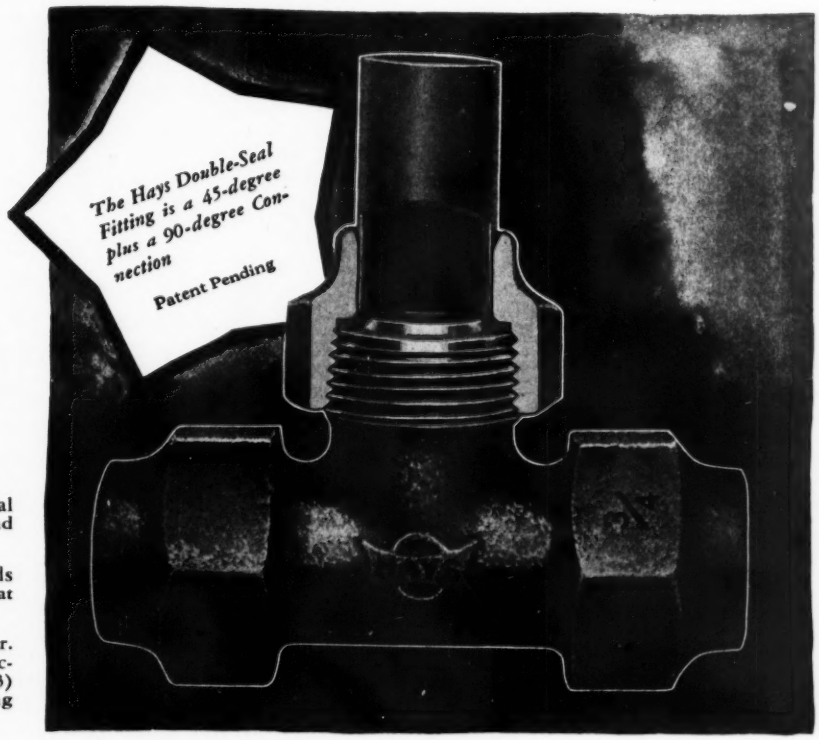

★Exclusive with Hays—this double seal provides double strength, safety and ease of installation.

The 45-degree seat of the fitting holds the pipe in a wedge, making a seal that is absolutely tight.

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DOUBLE SEAL CONNECTION

Modern Drainage *and* Vent Fittings

Article No. 2

By R. M. STARBUCK, JR.

IN A previous article we went into considerable detail concerning the causes of the rapid development in drainage and vent fittings. According to our own opinion, arrived at after considerable earnest thought on the subject, the original starting point of this development seems to be coincident with the introduction of continuous venting. Other causes or factors that we named, are the introduction of circuit and loop venting, the advent of bungalow construction, the demand for separate entrance of all fixtures to the drainage system, and the Hoover recommendations.

The previous article considered only fittings whose principal inlet was of the T-Y type, and we stated that the second article would have to do with similar fittings in which the principal inlet was of the Y-branch or combination Y and one-eighth bend type.

The reason for this separation of the subject of stack drainage fittings into these two classifications is the fact that in the original Hoover report, and again in the recent 1929 revision of the same report, a very sharp distinction was brought out between the fixture-carrying capacities of stacks using the two types of drainage fittings. So decisive is the distinction,—so emphatic is it in favor of the Y-branch or combination Y and bend, that we shall be surprised if it does not influence the future design of fittings and their use to a very large extent.

The original Hoover recommendations covered only the "requirements for plumbing in dwellings and similar buildings," but the new report covers all plumbing installations, regardless of size.

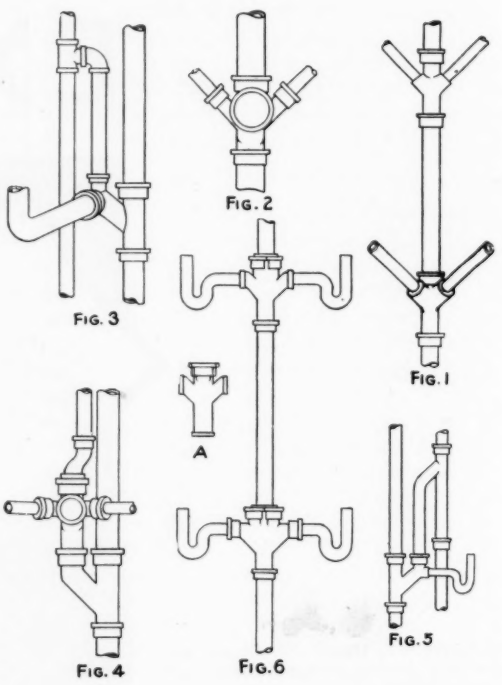
In many instances, whether fittings used in the plumbing of dwellings were of the T-Y or Y-branch type would matter but little. If there were any difference in efficiency between the two, it would probably never be known, for in this class of plumbing installation large demand does not exist as it does in many plumbing installations of the large, public type, and therefore the plumbing of a dwelling might never be put to a real test.

Drainage Fittings and Stack Capacities

The subject that we are discussing appears to be quite a vital one to large installations, and to installations not so large also, and we are therefore going to give you some of the information on the subject of drainage fittings and stack capacities that has been brought out in the Hoover report, based on scientific investigation and experiment.

On page 50, under the heading, "Capacities of Soil Stacks," the following appears,—

"There has been a tendency to use soil stacks and waste stacks which are too large. Starting with the assumption that no static head should be developed in the stack, and considering that the place where the stack would be first likely to run full would be immediately below the fitting through which the water entered, it was reasoned that the capacity of the stack should be determined by the capacity of the inlet fitting. Experiments were therefore made, to determine the capacity of inlet fittings, and with these as a basis, the capacities of stacks of different sizes were found by experiments and computations. Doctor Hunter deduced a mathematical formula for stack capacities. The following figures will show the capacities of certain commonly used stacks and inlet fittings:

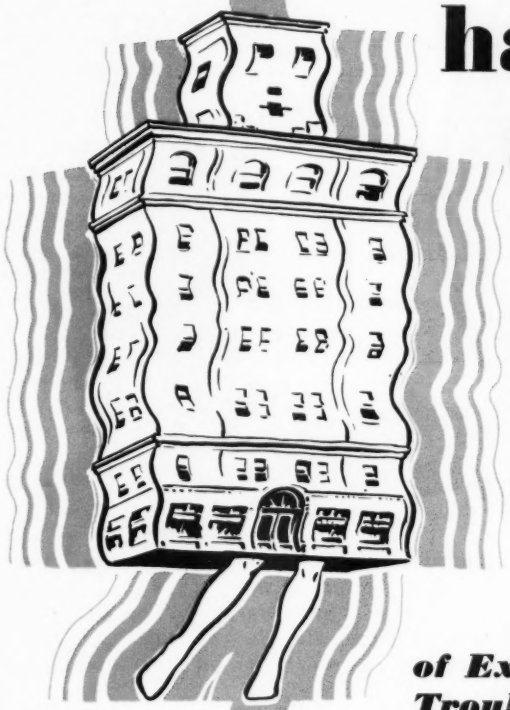


Diameter of Stack in Inches	Capacity of Stack in Fixture Units	
	Single or Double Sanitary T Fittings	Single or Double Y, Combination Y, and One-Eighth Bend Fittings
2	6	12
3	13.5	27
4	24	48

"It will be observed that the sanitary T is much less satisfactory than a Y or a combination Y and one-eighth bend as an inlet fitting, as it limits the stack capacity. Or, to put the matter in another way, a 3-inch stack with proper inlet fittings has almost as large a capacity as a 4-inch stack with sanitary T inlet fittings."

The last sentence in the foregoing statement, tells the whole story, which is nothing more nor less than the fact that a stack using single or double sanitary tee or T-Y fittings, can handle only half the number of fixture units that a stack can serve on which Y-branch fittings

"Every Little Movement has a meaning all its own"



With a Hula Dancer each little movement means applause. But in buildings the movements caused by the natural settlement; and the contraction and expansion of Soil, Waste and Vent lines means G-R-I-E-F.

For every one of these movements tends to buckle the stack and *cause leaking joints.*

AT LAST—*a real solution of Expansion and Building Settlement Troubles in Soil, Waste and Vent Lines*

EXPAN-HUB can't stop the movements due to the settling of the building, nor prevent the stack from expanding and contracting—nothing can do that. But the specially designed gasket, inserted at the factory in each length of EXPAN-HUB, absorbs all these movements **so that the stack remains true and the joints gas tight.**

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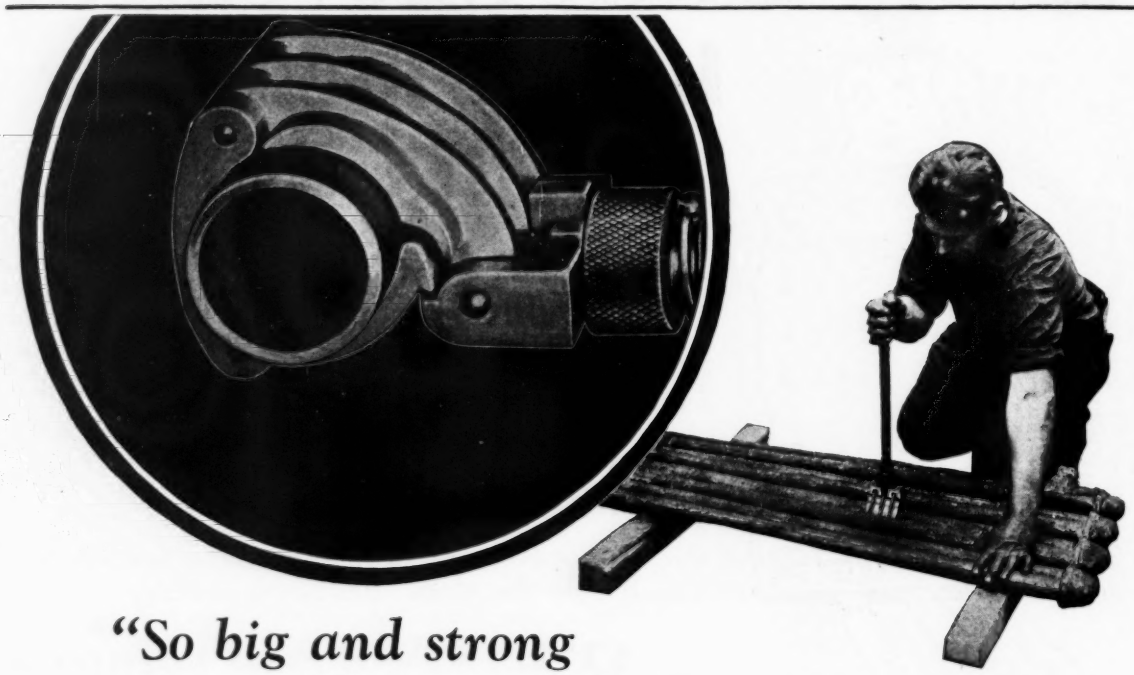

"So big and strong but . . . oh . . . so gentle!"

Its toothless jaws will break the tightest joint

The Walworth Parmelee wrench hasn't a tooth to mar the surface of smooth pipe and polished rods. It does not need one! The steel fingers of this wrench take hold like your hand, but with a grip of such power that it can break the tightest joint.

Notice, too, how little space the Parmelee requires to get its grip. Where pipes are close to a wall, in a corner, or made up in a coil (as in the illustration) this wrench needs no more than finger room to give it a hold.

Its grip is instantly released by a reverse motion of the handle so that it can shift to a new hold after the slightest turn of the pipe.

The Walworth Parmelee is especially recommended for all jobs where smooth tubes, galvanized, brass or copper pipe, or polished rods are to be protected.

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or combination Y-branch and one-eighth bend fittings are used.

This explains why we have thought it a wise plan to separate the subject of stack drainage fittings into the two classifications.

Benefits of Y-Branch Emphasized

It explains also why we desire to emphasize in these articles the benefit to be derived from the use of the Y-branch as opposed to the T-Y fitting.

We think there has always been the knowledge on the part of the plumbing trade that the Y-branch was greatly to be preferred, but so far as we know, until the Hoover tests were made, there were no absolute facts to support this knowledge. The fact that this knowledge did exist and was applied, is attested by the fact that practically all plumbing codes prohibit the use of tee fittings, even on vertical lines.

The T-Y is a compromise between the tee and the Y-branch,—it is a very useful fitting, and anything that we have said should not be construed as any argument against further use of the fitting.

We do mean to say, however, that in view of the knowledge we now possess on this subject, it would seem the logical thing to turn our practice as far as possible, to the use of those drainage fittings that are of the more efficient design, particularly in installations larger than those called for in dwellings.

A second table shown on page 103 of the Hoover report, and which we show herewith, carries further the information contained in the preceding table, by including sizes up to 8-inch. The table also shows capacities not only in fixture units, but in gallons also.

Capacities of stacks, with fixtures connected direct

Diameter of Stack in Inches	Practical carrying capacity of stack constructed with single or double fittings.			
	San T		Y or Combination Y and ⅛ Bend	
	Gallons per Minute	Fixture Units	Gallons per Minute	Fixture Units
2	45	6.0	90	12.0
3	100	13.3	200	26.7
4	180	24.0	360	48.0
5	280	37.3	560	74.7
6	405	54.0	810	108.0
8	720	96.0	1,440	192.0

Our chief purpose in presenting the foregoing tables in connection with the subject of modern stack drainage fittings, is that they are stronger evidence than anything else that we can present, of the great superiority of Y-branch fittings or Y-branch and ⅛ bend fittings over T-Y or sanitary tee drainage fittings.

In the past we have not hesitated to give the Hoover report full credit for doing many wonderful things for the betterment of plumbing, and here we have another marked instance of its great helpfulness.

It is one thing to suspect that a certain thing is true, and quite another thing to know absolutely that it is true.

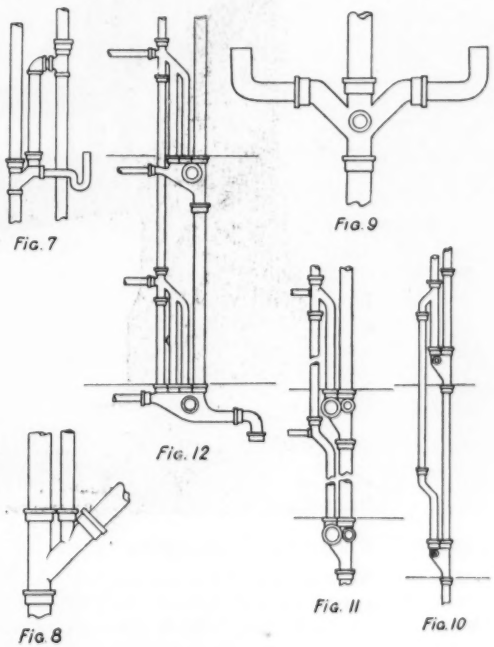
We have long had the impression that the Y-branch was the more efficient fitting, but that the difference is so great has not been known, we are quite certain, until the Hoover investigation established the fact.

The whole story is that the Y-branch lets the drainage enter the stack more nearly in the direction of flow down the stack, than the T-Y fitting does. The latter throws the waste across the stack, almost at right angles to the direction of flow. Naturally, in the use of the Y-branch waste fitting, the waste gets away faster, thereby making possible the serving of a greater number of fixtures, or putting it in another way, making possible the use of small sizes of pipe.

Stack Capacity Increased

We have already seen the statement that a 3-inch stack with Y-branch waste fittings has practically as great capacity as a 4-inch stack with T-Y fittings.

As we stated in the preceding article, the styles and varieties of special drainage and vent fittings are almost without limit. We saw this in connection with drainage fittings in which the principal inlet was of the T-Y type,



and now we shall see a similar situation regarding these fittings whose principal inlet is of the Y-branch type.

It is difficult to know just where to start. We know it is possible to show only a few of the many fittings now being sold, and we have endeavored to show those that present distinctive types as far as possible.

Some of the more simple fittings are shown in Figs. 1 to 11.

Fig. 1 shows two fittings known as double angle Y-branches. Both fittings are hub and spigot on the run with the branches tapped. They run from 2-in x 2-inch up to 6-inch x 4-inch. In the upper fitting, the branches point out in line with the main body of the fitting, but in the case of the lower, while the branches are 45's, they point forward. These two fittings illustrate well the fact that with a good assortment of fittings, a selection may be made that will enable the use of a fitting that is exactly right for the special purpose for which it is required. This always reduces labor cost, and that is the big item in these days of high wages.

Fig. 2 shows a combination fitting that has its main

NEW Dole VACUUM VALVE No 2 B

NEW CHROMIUM PLATED FINISH

NEW CONSTRUCTION

New Application of Principles

Not just a new vacuum valve but an entirely new application of principles—the new Dole Vacuum Valve No. 2-B. It differs from ordinary vacuum valves in that it seals the steam through the combined action of a vacuum primer, a bellows and a thermostatic float. In actual test and use, this new Vacuum Valve has shown remarkable results. Radiators stay hot many hours after the fire is banked.

Holds a Vacuum

Definitely holds a vacuum. Permits new steam to enter quickly and without resistance, even at low temperatures. Amazing performance—positive fuel saving—greater comfort.

Its good appearance suggests its splendid operation. A new and very attractive design, beautifully finished in the modern way—lustrous, highly-polished non-tarnishable chromium plating. Rich, different, distinctive. Completely harmonizes with any decorative scheme.

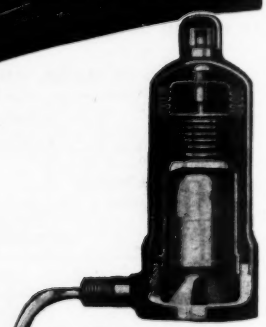
Nationally Advertised

Over 6,000,000 people who are tired of noisy—half-cold radiators will be told the story of the new Dole Vacuum Valve this Fall and Winter. Readers of The Saturday Evening Post, Literary Digest and American Magazine will welcome messages of greater comfort and economy, of a valve that helps maintain summer warmth—sealed comfort, all winter long.

More Profits for YOU

This new valve, backed by a national advertising campaign, means profits for heating contractors who sell it. Many one-pipe steam heating systems in YOUR community are inefficient and wasteful—every one a prospect for the new Dole Vacuum Valves. Start now to campaign your territory for greater prestige and profits. Order six Dole Vacuum Valves No. 2-B today. Install them on a balky system and check results.

Write NOW for complete information.



Dependable Triple-Action

A vacuum primer, a bellows and a thermostatic float—this triple-action insures positive performance. It "holds a vacuum."

100 per cent automatic—non-adjustable, cannot leak water, foolproof, seat self-cleaning, syphon instantly drains away condensation, vacuum primer a sure starter, bellows design positively assures a vacuum. No "radiator static."

Made from best materials. Precision workmanship throughout. Fully tested, and guaranteed for 5 years. Valves individually packed in smart containers. Special display box holds 12.

Selling points galore!

THE DOLE VALVE COMPANY

1913-33 Carroll Avenue, CHICAGO

inlet opening of the Y-branch and one-eighth bend type, and the two side inlets regular Y-branches. This fitting may also be obtained with two 4-inch inlets, and with only one side inlet. The same fitting is made with T-Y main inlet.

The fitting seen in Fig. 3 is a valuable one. As the branch enters the side of the fitting, it brings the hub back close to the stack, thus giving the advantage of a T-Y, and still delivering the waste to the stack in the same manner as an ordinary Y-branch.

This fitting is made right and left, that is, for a water closet setting either at the right or the left of the stack, and is also made double, for two water closets. The vent opening is tapped.

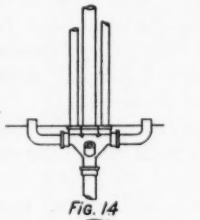


Fig. 14

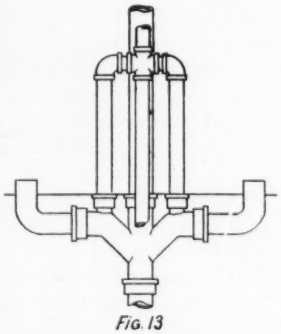


Fig. 13

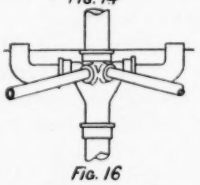


Fig. 16

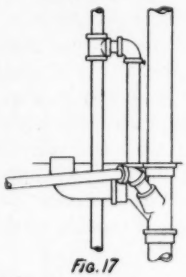


Fig. 17

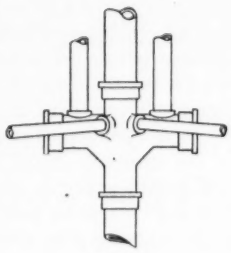


Fig. 15

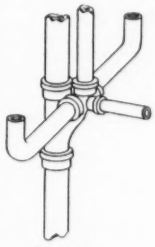


Fig. 18

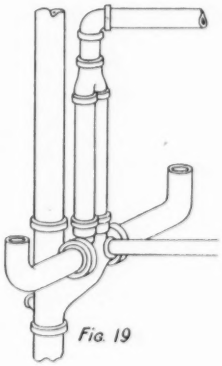


Fig. 19

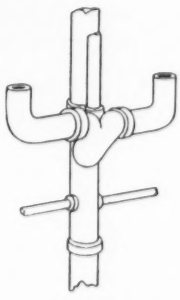


Fig. 20

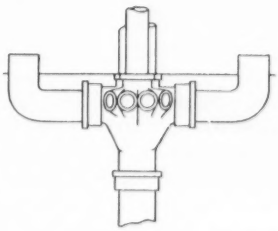


Fig. 21

Fig. 4 presents several features in modern drainage fittings. It will be observed that the principal fitting here has all of its inlets of the T-Y type, but inasmuch as the fitting sets into a fitting having a Y-branch, the advantage of the Y-branch is gained. It would seem, however, that in many instances the use of the two fittings would represent quite an expense.

H-Branch Fitting

The Y-branch with inlet pointing upward, and known as an H-branch, is a valuable fitting, and is often used for connecting the vent stack into the soil or waste stack. This illustration also shows the use of a reducing offset fitting, reducing from 4 to 2 inch, or from 3 to 2 inch.

In Fig. 5 is seen a fitting of exactly the same style as the Y-branch in Fig. 4, but with a tapped inlet for the waste connection. This fitting is made with many different variations on the waste inlet, and is made double also.

A very compact double drainage fitting is to be seen in Fig. 6. The upper fitting has its waste inlets tapped, while the lower one has the regular hub. Each inlet is provided with its own vent hub.

A very similar fitting but with a single vent opening for the two fixture wastes, is shown at A, Fig. 6.

Fittings of this type are of particular value in continuous vent work.

Lock for Calked Joint

Some of the fittings here shown have a special feature which prevents the lead working loose in a caulked joint. Inside the hub, and not far down from the top of it, a groove is cast into the hub. When the molten lead is poured, it of course fills into this groove, and this lock, if it may be so called, prevents the lead working out of the hub.

Under many conditions this feature should be of great value. Often when cast iron stacks are subjected to great strain from extreme expansion and construction, the lead will in time be forced out of the hub. This would be one reason that the waste from steam boilers must first pass through a condenser, before passing into the house drain. If waste of such high temperature were to enter directly into the drainage system, destruction of the joints might very likely result in the manner we have mentioned.

Expansion in Stacks

Also, in running the vent from the condensing tank up through the roof, it would be wrong to use anything but screwed pipe, for pipe with caulked joints would not stand up under the excessive strain due to extreme expansion and contraction.

Fig. 7 shows a fitting of the same style as Fig. 6, but it will be noted that the hubs are different from the ordinary fitting. They are made in this way for the purpose of taking up expansion without injury to the stack.

We have just described how a grooved hub will prevent the lead from being forced out of the hub by expansion, but while this is perfectly true, and a most

valuable feature, we of course know that the expansion is not overcome by any such method, but must take place and with very great force.

In fittings such as shown in Fig. 7, the hub is designed to receive a flexible, soluble expansion gasket. This gasket will support the stack above it while being installed, in a perfectly satisfactory manner, thus allowing the installation of stacks in advance of the concrete

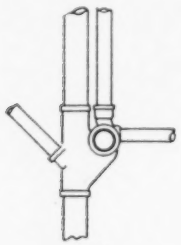


Fig. 22

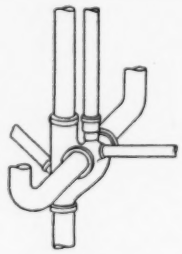


Fig. 23

work. However, on completion of the work, the soluble gasket dissolves and washes away, leaving the space previously taken up by the gasket, for expansion of the stack. As we have already pointed out, the force of expansion is very great, and when pipe and fittings are imbedded in concrete something must give unless provision is made for taking up this expansion.

The fitting illustrated in Fig. 8 is known as a Boston long Y, with 2-inch vent. It is more valuable as a fitting providing an entrance for a branch line than for receiving the discharge from a fixture, for this type of Y-branch fitting could not be rightly used in continuous vent work. The vent opening for a fixture discharging into the branch of such a fitting would be too far below the dip of the trap to provide proper venting. Continuous venting may be obtained from Y-branch fittings, however, although they need to be of such types as seen in Figs. 7, 10, 11, 12, etc.

Double combination Y and one-eighth bends, such as depicted in Fig. 9, find excellent use in double bath room or toilet room work, where groups of fixtures back up each other. The same fitting may be obtained with a vent hub for each branch.

It would seem better to raise the side inlet to a higher point on the fitting, in order to overcome the tendency to

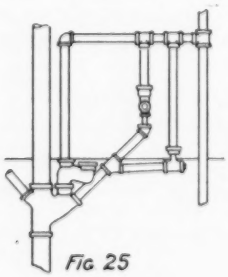


Fig. 25

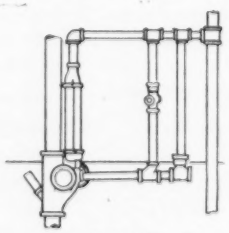


Fig. 24

siphonage that would result from the passage of waste from the two water closets, past the entrance of the side inlet.

Figs. 10 and 11 show fittings that are typical of an extensive line of similar fittings. Included are special vent fittings, which we shall consider in another article.

The fittings shown in Fig. 12 are also typical of an assortment of vented drainage fittings with special inlets that cover almost every requirement that would naturally arise in practice.

Just see what one of these fittings does,—the service it renders, the fittings and labor that it saves, and the compactness that it allows the work to be installed in.

Single Fitting for Entire Bathroom Drainage

One of these fittings provides for carrying the main stack, receiving the discharge of a water closet, with vent for it, an inlet for the lavatory, also inlet for the bath tub. The drainage of an entire bath room is thus handled by a single fitting, and with two fittings both drainage and venting are taken care of. Moreover, many of these combination fittings are made double, that is, for two bath rooms or sets of fixtures.

The lower combination fitting is similar to the fitting above, except that it is for use at a point where the stack offsets.

A few of the various double combination vented drainage fittings are seen in Figs. 13 to 16.

The first of these, Fig. 13, is a commonly used fitting for double bath room work, or double toilet rooms. When cast iron closet bends with special inlets are used with such fittings, it takes care of the entire bath room work.

The fitting in Fig. 14 is similar to that of Fig. 13, but more compact, as the vent hubs are brought closer to the stack. It also has a Y-branch side inlet, which may be duplicated on the opposite side of the fitting if desired.

Another modification of Fig. 13 is shown in Fig. 15. Here the vent openings are tapped. Another style of fitting is the same as Fig. 15, but with the side inlets spread apart sufficiently to allow a third 2-inch opening between them. It will be seen that with the inlets duplicated on the opposite side, this fitting is capable of doing a large amount of work.

A fitting similar to Fig. 15, but unvented, is seen in Fig. 16. Such a fitting might be used on a top floor, with fittings such as Fig. 13, 14 or 15 on lower floors.

A very handy closet fitting, vented and with a Y-branch side inlet is shown in Fig. 17, and we believe the same thing is obtainable double.

Figs. 18, 19 and 20 illustrate another type of double vented combination drainage fittings.

It will be noted that owing to the position of the inlets, and the direction which the branch takes in entering the body of the fitting, for double bath room work the fitting does not spread out so widely as in the case of Figs. 13 and 15.

Single Vent for Two Water Closets

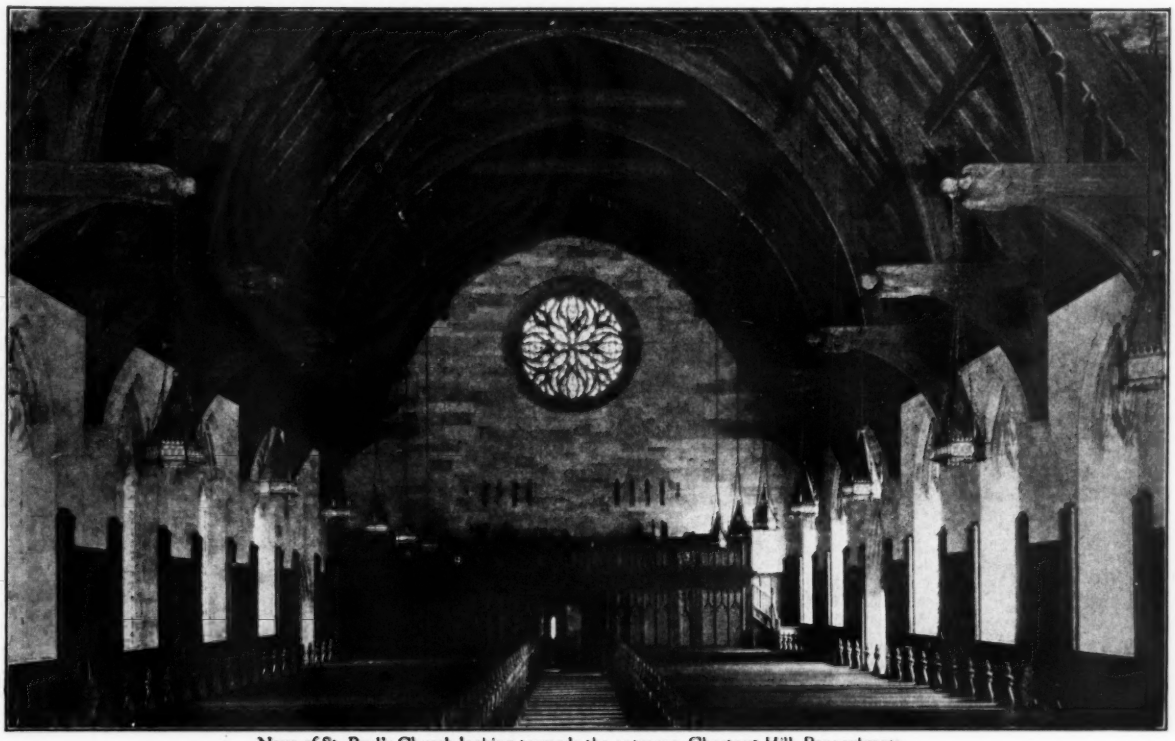
Figs. 18 and 20 show a single vent serving the two water closets. This fitting in common with most other vented fittings, may be obtained unvented.

The fitting in Fig. 19 is double vented, and we show a special fitting for bringing the two vents together.

It should be stated that these are fittings for screwed pipe.

The fitting seen in Fig. 20 is for wall hung water closets. A single vent is used, but the same fitting may be obtained with two vents. This fitting is made in 4-, 5-, or 6-inch size, and the inlets for bath tub and lavatory which are lower down, can be eliminated if desired. The

(Continued on Page 117)



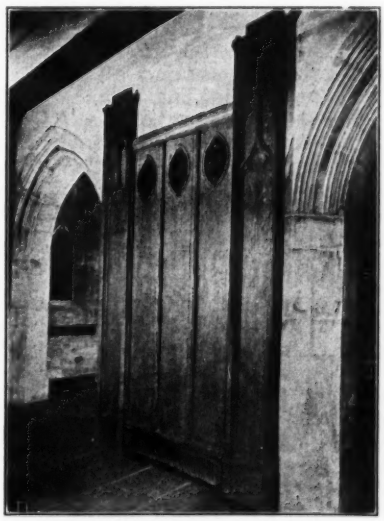
Nave of St. Paul's Church looking towards the entrance, Chestnut Hill, Pennsylvania.
Zantzinger, Borie & Medary, Architects, Isaac H. Francis, Engineer. P. Gormly Co., Heating Contractors.

How Can ROBRAS 20-20 Radiators Be Used To Provide HIDDEN HEAT In a Church?

HEATING a church with ROBRAS 20-20 Radiators in the wall, out of sight, and out of the way, can be accomplished in a number of ways. Illustrated here, however, is one of the most ingenious methods.

ROBRAS 20-20 Radiators were installed in the shallow space back of the wainscot and in the wall under the windows, in each of the window recesses. Air is admitted to the radiators behind the wainscot by inconspicuous floor grilles. The heated air is discharged by decorative grilles high up on the wainscot. By this method, two things are accomplished. High draft heat is obtained and the grilles are inconspicuous.

Additional radiation was provided by enclosing ROBRAS 20-20 Radiators in the end walls. The heated air is discharged by vents such as are visible by the door.



Method of using decorative grille in wainscot to conceal source of heat.

ROBRAS 20-20 Radiators so accelerate the circulation of air that the air directly under the roof and at the floor level, is more nearly the same temperature than is possible with any other type of radiation.

Another advantage of this more rapid circulation, is that the entire church is more quickly heated, once the heat is turned on. It is a flexibility of assembly of these radiators that makes it possible to use them in a place of almost any shape or size. They are adaptable.

Price lists and data sheets are ready to be sent you as soon as we have your name.

ROME BRASS RADIATOR
CORPORATION
ONE EAST FORTY-SECOND STREET • NEW YORK CITY

RETAIL ADVERTISING SERVICE

Here is copy for two newspaper advertisements and a sales letter which our readers are free to use without charge. The cuts, if you want them, are sent you for twelve weeks—two new cuts every other week—for $4.20.

Create Beauty in the Home

IT IS EASY to create an atmosphere of beauty in your home at the same time you are adding conveniences and necessary household equipment. And now that the beginning of a new year brings thoughts of home remodeling, let the modern idea of beauty be your watchword. Bring your home up-to-date by replacing the old and renewing the worn. Provide that much-needed extra bath-room, by utilizing wasted space. You can make show rooms of these most important rooms in the home with no extra cost, and without neglecting the chief requisite of utility. We will be glad to discuss the matter of remodeling with you at any time. Just telephone.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 58

MAKE YOUR RESOLUTIONS EARLY

"New Year's resolutions are now the rage," says Harry Brown, local plumbing and heating contractor, "and the sensible man is making a grand resolve to start his remodeling early. He is going to remodel with the idea of making his home not only efficient but more attractive.

"The strides that have been made in recent years toward rendering the home more comfortable and more beautiful have been definitely progressive.

"People are remodeling from year to year rather than waiting to shoulder a big burden out of sheer necessity. In plumbing and heating, for instance, they have found that it is just as easy to have beauty as well as comfort and convenience."

SALES LETTER
No. 26
HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.,
December 28, 1929.

Mr. Edward Jones,
Two Rivers, N.Y.
Dear Sir:

The beginning of a new year prompts me to remind you that now is the time to think of remodeling. Make that your strongest resolution.

The longer you put off replacing outworn fixtures, renewing the efficiency of bathroom, kitchen and laundry room plumbing, and checking over the heating plant, the more expensive will be the outlay when you finally begin remodeling.

A good place to begin remodeling is in the basement. You can always use another room, and you can easily provide another by simply bringing your heating system up-to-date and getting rid of the dirt that accumulates around an old-fashioned heating plant.

Pipe insulation is another very important matter to consider in remodeling. Do you know that a large percentage of fuel, consumed in manufacturing steam and heat, is wasted in radiation through bare pipes? And do you know that practically all of this loss can be prevented by proper insulation?

To make the problem even easier for you, we will be glad to make a thorough check on your remodeling needs.

Very truly yours,
HARRY BROWN

AT LEFT and right you will find newspaper publicity items. Clip them and hand one each week to your local paper. Get your name in the news columns as well as the advertising columns.

Does Every Room —Welcome You?

DO YOU have the feeling when you go from one room to another that you are entering an ice box? Perhaps your heating plant appears to be in excellent working order, except for the fact that the heat never seems to reach the rooms for which it is intended. The seat of such trouble very often lies in the absence of pipe insulation. One of the most serious losses which can occur is the escape of heat from bare pipes. A large percent of fuel is consumed in manufacturing steam and heat which is wasted through radiation. Proper insulation will prevent this loss to surprising degree. In addition, you are assured of a uniform distribution of warmth throughout the house. Pipe insulation, obviously, is an extraordinary economy.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 59

YOU CAN'T SELL SMOKE

"Would a large corporation allow thousands of dollars to leak out of its treasury year after year?" asks Harry Brown, local plumbing and heating contractor.

"Well, that is just what scores of home owners are doing, only on a smaller scale. They are burdening a heating plant with the extra load of over-heating some rooms of the house in order to maintain a half comfortable temperature in others.

"The answer in a nut shell is that they do not believe in pipe insulation. They do not know that their plant is manufacturing heat to be wasted in radiation through bare pipes. They believe that uncovered pipes will help heat the rooms, because they don't know that heat is an elusive element."

Copy for an Educational Leaflet

Copy A

(In this space your Name, Telephone Number and Address)

AT the left we show layout for one of the educational leaflets in the series being published on this page. The copy is below. All you have to do is show copy and give the cut to your local printer—he can make it up in just the size shown, to be kept in your sales room and enclosed in letters. The copy can be used on a blotter, also. (35c for the cut.)

Copy "A"
for the Educational Leaflet

Warmth in Every Room

MANY people think that heating lines do not need insulation. It is a common misconception that the radiation from bare pipes will help heat the rooms. Heat, however, is very elusive. For, in most cases where it radiates from bare pipes it goes to the wrong part of the house. The rooms nearest the boilers will be overheated. Those farthest away will be too cold. Thus, fuel is wasted in heating some rooms excessively in order to force heat through the entire system.

Cold water pipes, on the other hand, should be insulated to prevent sweating. In the basement sweating pipes cause undesirable dampness. And drops of water falling from pipes on drying clothes in the laundry room leave rust spots. Uninsulated pipes may weaken plaster or spoil the wall finish.

The initial cost of pipe insulation is not prohibitive. You may be sure that it pays for itself many times over. Telephone us and we will be glad to give you a detailed explanation.

Copy for Letter Enclosure

(To be set up by your printer just as shown here and sent with any correspondence addressed to customers.)

A Certification of Reliability

The knowledge that you will receive faithful, sincere service in dealing with us is an assurance of tremendous worth. Our reputation has been founded on service, and service will remain our guiding light. Let our light, then, be a guide to you also.

Just think of us in the manner you think of your family doctor. We are ready to serve you when you need us. We are qualified by years of experience to diagnose the ills and ailments of your plumbing and heating systems; and to prescribe the medicine that cures without fail.

(Your name, telephone number and address here.)

Heating *in* Southern California

By W. E. MELLEN

Fig. 1.—View of Long Beach, Calif., department store which is heated with gas employing blast heaters. As indicated in the illustration, a limit of 12 stories is placed on buildings in this locality

TO THOSE readers who live in the stormy wintry belt of these United States, and who look upon Southern California as a land of perpetual sunshine, it may be surprising that this section presents problems in heating and ventilation,—problems peculiarly its own, and as worthy of engineering study as any elsewhere.

In this article a type of building is described, with the system in use. It must be remembered that the state of California extends along the Pacific Ocean from Oregon to Mexico, furnishing more styles of climate than any other state in the Union; we have the highest mountain peak on the continent as well as the lowest valley; we have buildings on snow-capped mountains where heat is required every day in the year, and in Imperial Valley the hotels and public buildings all have heating plants for cold nights. San Francisco needs heat nearly every night of the year, while Long Beach and San Diego can get along very well without heat except a little during the winter.

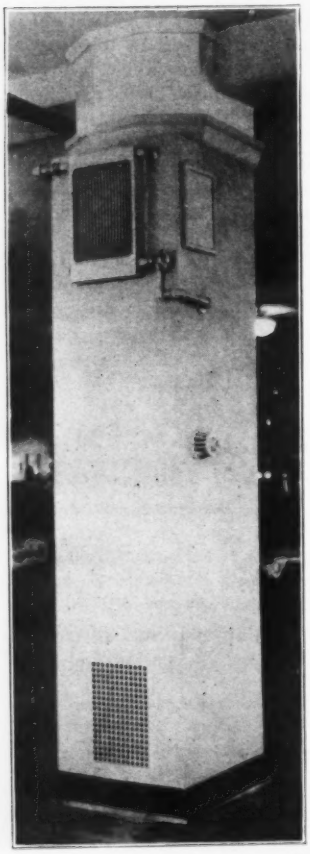


Fig. 2.—Recirculation box and heater. The fan, motor and the deflectors are concealed in the casing

These problems are recognized as problems for the specialists to solve, and most of the architects employ consulting engineers to prepare plans and specifications for their heating and ventilation. These engineers have discovered that air conditioning is of the utmost importance in this climate.

This story will be that of the heating and air conditioning plant just installed in a new department store in Long Beach, California. Due to the modern viewpoint of city authorities, no building is allowed over twelve stories in height,—decentralization of business being favored over the old style segregation of skyscrapers, causing traffic problems.

In studying the problem in Long Beach, heating engineers figure on a minimum of 30 degrees Fahr. happening perhaps six times a year, and a maximum of 88 degrees Fahr. about as often. Artificial heat is required five or six months each year, and then only in the morning and evening; in other words until 9 a. m. and after 4 p. m., except on rainy days when heat is required all day. Residential heating is a problem by itself; that of large stores is now described.

The blast method of heating is used and a twelve-section (48-in.) boiler, gas fired, is installed in the basement. An overhead system of vacuum piping is provided, the installation having been made by Thomas Haverty Co. of Los Angeles. The municipal rate for fuel gas for this class of buildings is 25 cents per thousand cubic ft., one of the lowest in the country.

The amount of radiation is figured at about 50 per cent. of that needed in Chicago, and on account of the peculiar conditions, each stack is arranged to be used at 1/3, 2/3 or its entire capacity.

Natural infiltration of air is figured at one change per hour and when necessary the windows may be lowered from the top for as many changes as desired.

During the summer on days that the temperature runs above 80 degrees Fahr. in the middle of the day, this system will be used, using as few or as many units as required.

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The handle may be locked in any position.

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An Unusual Plumbing Job

By HAROLD G. WILSON

Fig. 1.—General view of the building from the front ready to be dropped about 8 ft. and moved across street to its new site

THE Allegheny County morgue building located in downtown Pittsburgh, had to be moved to a new site a distance of about 300 feet and across an avenue. The building had to be in operation every minute of the day and night because persons found drowned or dead are taken care of there. Considering the great metropolitan area of Pittsburgh this building is very active. Identification of bodies goes on there, so the building must of necessity be open at all times to the public.

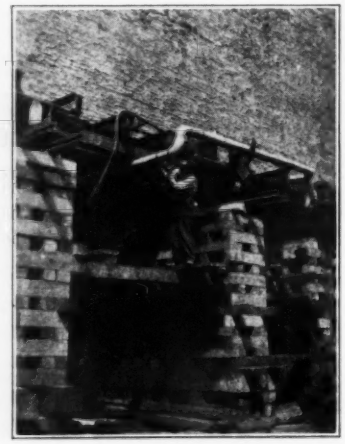

Fig. 2.—A plumber patching up a lenk in the sheet metal pipe which is the main drain from the building

The building was moved 32 feet to the right and then back 267 feet, also dropped about 8 feet to the new site. All this was done without a moment's interruption of the plumbing system. The moving of the building alone was quite an engineering feat as it was constructed of granite with an estimated weight of 50,000 tons. The welding torch came into play when the general contractor had to cut out many granite blocks for the under-pinning. The blocks were just melted out instead of cut with a hammer and chisel, saving many hours of hard work. The temporary approach to the building was arranged in such a manner that it telescoped in or out according to the movement of the building in transit.

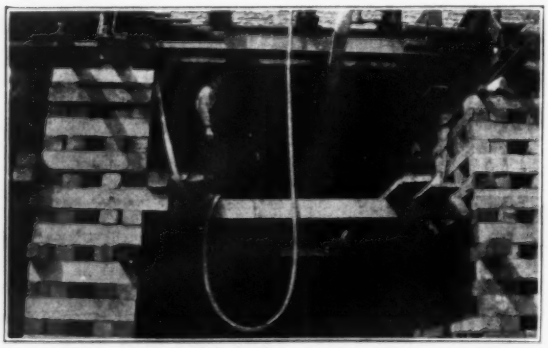

Fig. 3.—Another view of the rear of the building showing water and gas hose lines to the building

Drain Facilities Provided While Moving

There are about 25 plumbing fixtures in the building, also a refrigeration plant which uses a continual stream of water all the time. The number of soil and waste openings including rain water leaders was about twenty. They were first cut off at the basement ceiling and connected with an old 5-inch W. I. pipe line which acted as a main lead. Connections were burned into the old line and all branches made with sheet metal pipe. A 6-inch sheet metal pipe came out of the rear of the building and made connection with a 7-inch pipe of the same material into the sewer. About 250 feet of so-called stove pipe was used. It was so arranged that the 6-inch pipe would slip in or out of the 7-inch pipe according to the movement of the building. Some times the position of the building to the sewer opening caused trouble.

(Continued on Page 116)

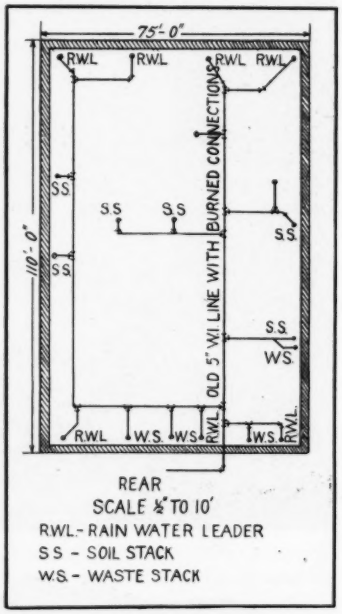

Fig. 4.—Plan of the building showing approximate locations of the different stacks, and how the temporary connections were made with stove pipe

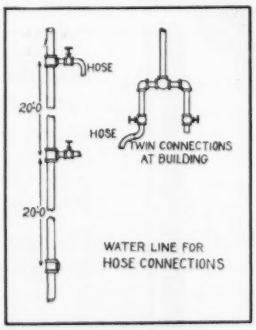

Fig. 5.—Showing the arrangement used to keep the water on in the building, continually, while the moving was going on

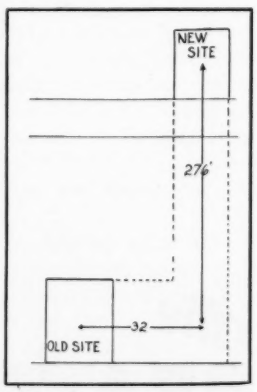

Fig. 6.—Showing the direction in which the building was moved

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Few people realize the great influence the proper grade of sand for molding and core making has on the finished fitting. In making M.I.F. Molds only the highest quality, most carefully selected sand is used. Fittings are classified according to size and in M.I.F. procedure a particular sand is adapted for each classification and used for both core making and molding. Here again M.I.F. scores heavily. If only one kind and grade of sand were used for all sizes uniformity would necessarily be sacrificed.

This added precaution assures smooth inside finish which in turn means less internal friction on a pipe line. Smooth outside finish means more uniform thickness by elimination of coarse sand depression.

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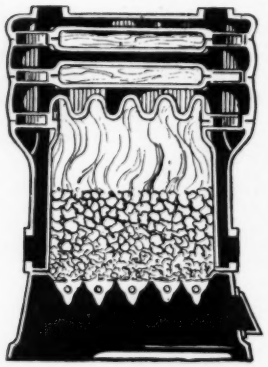

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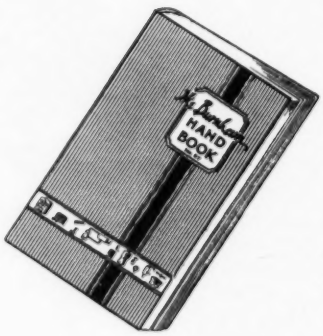
NO need to tell you what heat savers those corrugations in the Burnham Boiler crown sheet are.

But you'd be surprised how few of your prospects notice such all-important things for themselves, when they're right there before their eyes.

Take a hint from us. Point it out, the next time you have a heat-hungry customer to deal with. We've seen that corrugated crown sheet combined with the Burnham long fire travel. The long fire travel that makes the short coal bill clinch many a hard sale.



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Testing Fuel Oil

By H. L. KAUFFMAN

AN inquiry from a reader as to the best method for testing fuel oil for gravity, heat value and water content and from whom a reliable, moderately priced testing set can be purchased has prompted this short discussion.

The A.P.I. hydrometer is the most satisfactory device for determining the gravity of the average fuel oil. Use of same involves the basic principle that when an object floats in a liquid it displaces a volume of liquid equal in weight to that of the floating mass. The hydrometer, therefore, is an instrument which measures the volume of a liquid corresponding to its weight and, essentially, is a measuring graduate with the liquid on the outside instead of the inside. However, when a fuel oil is so heavy and viscous—even after being heated—that the hydrometer does not sink readily in the oil, and so makes accurate determinations very difficult, if not impossible, then the use of the pyknometer or the hydrostatic balance is recommended.

The determination of gravity with a pyknometer involves weighing an accurately determined volume of oil in a suitable container. There are numerous types of pyknometers, the familiar specific gravity bottle being, perhaps, most generally used. Measurement of gravity with a hydrostatic balance involves determining the weight required to overcome the buoyant effect of the oil upon a totally immersed plummet of predetermined volume. The Westphal balance is an instrument especially designed for the rapid and convenient determination of this weight. Hydrometers manufactured in the United States are calibrated to indicate gravities corrected for the buoyant effect of air. When gravities are determined with the pyknometer or hydrostatic balance, corrections must be made for the buoyant effect of air on the weights, if it is desired to obtain results identical with those indicated by the hydrometer test.

Determination of Water and Insoluble Solids

The determination of water and insoluble solid impurities is one of the most important tests that should be made on fuel oil. The three most important laboratory test methods in use in this connection are the centrifugal method for both water and sediment, the distillation method for water, and the extraction method for sediment. Water and sediment by centrifuge, frequently designated as "B. S. and Water," is the percentage by volume of the aqueous layer, including sediment and incompletely broken emulsion, separated when the fuel oil under test is diluted with an equal volume of benzol and then centrifuged under specified conditions—this being the simplest and most satisfactory of the three methods mentioned for testing the average grade of fuel oil. The method is convenient and ordinarily yields closely reproducible results, but is, nevertheless, empirical. Its chief disadvantage is that, when applied to fuel oils of too high viscosity, it may not effect complete separation of the water and suspended solids.

Heat Value Calculation

The heat value of a fuel oil can be calculated from the gravity with sufficient accuracy for all ordinary purposes, so that $350 or $400 for a calorimeter would not be required for determining heat value.

The following formula is used in calculating calorific value from gravity, and is applicable to any type of oil:

18,650 + 40 (degrees A.P.I. — 10) = B.t.u. per pound.

To get B.t.u. per gallon, change degrees A.P.I. to specific gravity and from the specific gravity get the weight in pounds of each gallon of oil. Then multiply the B.t.u. per pound by the pounds per gallon to get the B.t.u. per gallon.

Below is shown the calculated calorific value of oils of various gravities:

Degrees A.P.I.	Calculated B.t.u. per lb.	Degrees A.P.I.	Calculated B.t.u. per lb.
14	18,810	33	19,570
15	18,850	34	19,610
16	18,890	35	19,650
17	18,930	36	19,690
18	18,970	37	19,730
19	19,010	38	19,770
20	19,050	39	19,810
21	19,090	40	19,850
22	19,130	41	19,890
23	19,170	42	19,930
24	19,210	43	19,970
25	19,250	44	20,010
26	19,290	45	20,050
27	19,330	46	20,090
28	19,370	47	20,130
29	19,410	48	20,170
30	19,450	49	20,210
31	19,490	50	20,250
32	19,530		

When the gravity reading falls between the whole numbers, interpolate between the figures given in the column opposite those numbers as calculated B.t.u. per pound to get the exact calorific value.

If it is known definitely whether or not the oil is a cracked or uncracked residuum, then it is possible to use the following equations, representing the relationship between the A.P.I. gravity of the oil and its heat value, as developed by Faragher, Morrell and Essex and given in a paper presented by them at the September, 1928, meeting of the American Chemical Society:

B.t.u. value of uncracked fuel oil per pound of oil

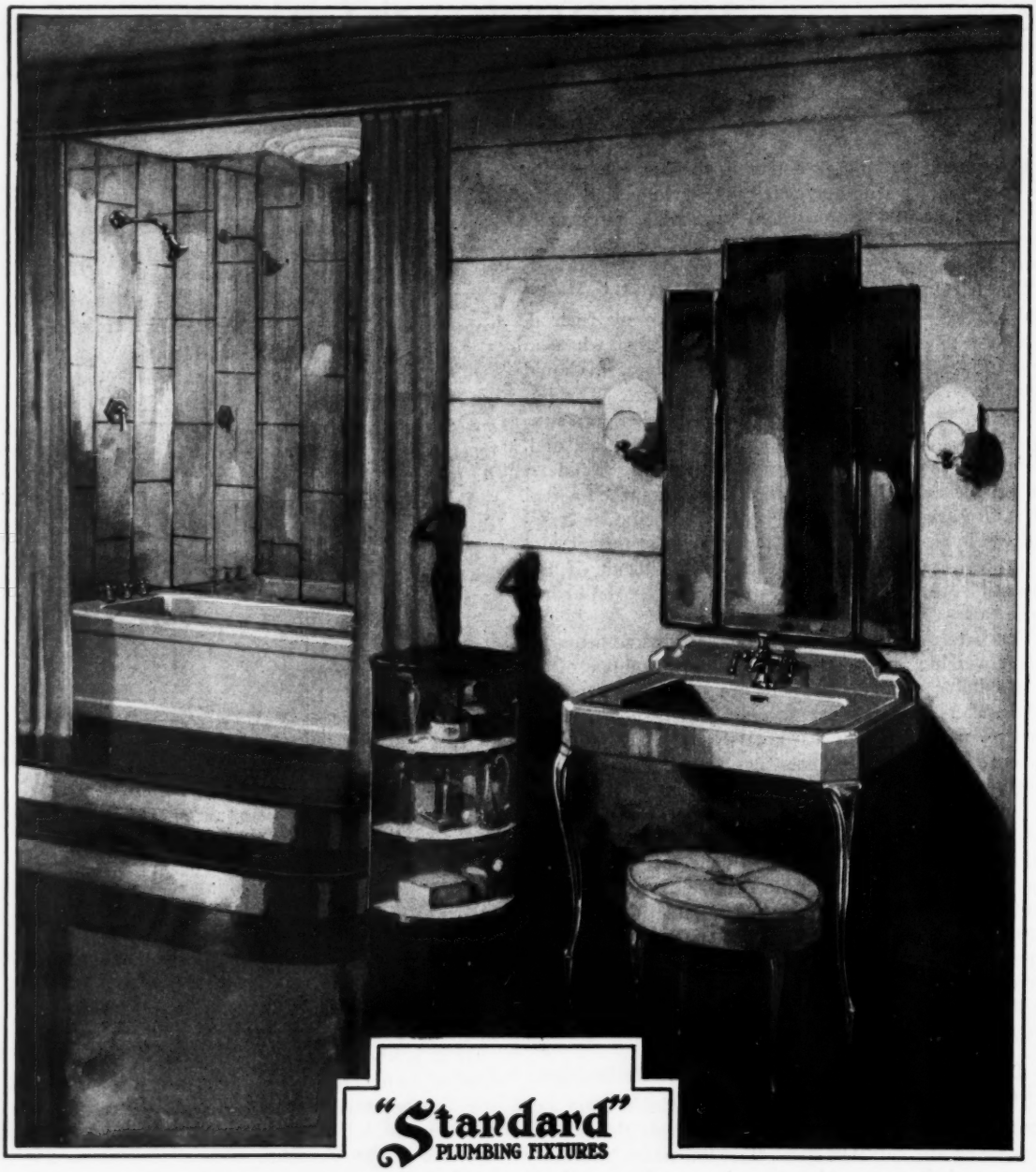
$$17{,}660 + (69 \times \text{degrees A.P.I. gravity})$$

B.t.u. value of cracked fuel oil per pound of oil

$$17{,}780 + (54 \times \text{degrees A.P.I. gravity})$$

In the first equation 17,660 and 69 are constants that have been determined experimentally; while the same is true of the numerals 17,780 and 54 shown in the second equation.

Full directions for making the tests and apparatus for determining gravity (hydrometer and hydrometer cylinder) and B. S. and water (centrifuge, B. S. tubes and benzol) in addition to being obtainable from standard references can be obtained from such supply houses as specialize in oil-testing equipment.



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"Standard" Acid-Resisting Enamel, not affected by tile-setters' acids, and non-tarnishing Chromard fittings, deserve a place in every installation. Adding years to the service of the fixtures, preserving the beauty and color of the bathroom, they amply repay their cost, whether the bathroom represents a hundred dollars or a thousand.

These "Standard" improvements — beautiful designs, color, Acid-Resisting Enamel, Chromard—are sure to give you profitable, satisfied customers—customers, who in their enthusiasm to show their friends will turn their bathrooms into display rooms for you.

Standard Sanitary Mfg. Co. Pittsburgh

DIVISION OF AMERICAN RADIATOR AND STANDARD SANITARY CORP.

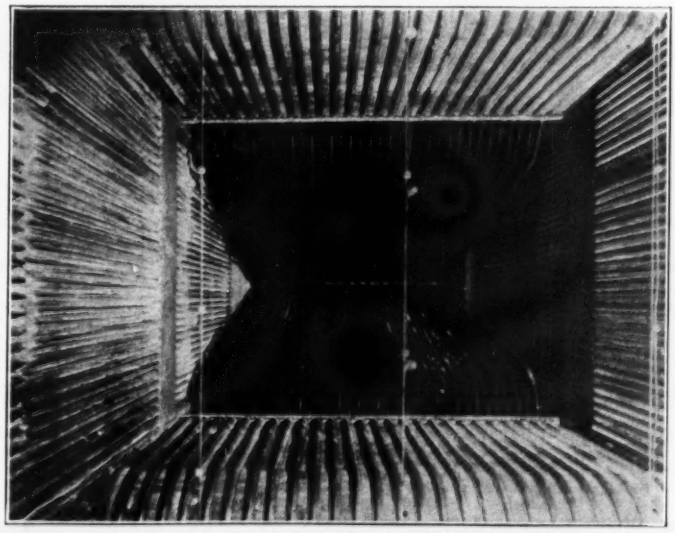
Luncheon held inside boiler prior to firing boiler. After the nine tables, seven of which are shown, were removed, the platform was burned to season the boiler

Inside *the* World's Largest Boiler

THE world's largest boilers are located in the East River Generating Station of the New York Edison Company. They consist of a battery of three boilers, the third of which was completed and placed in operation on December 3. The occasion was marked by a luncheon given in the boiler in recognition of the men who had a part in the project. Some idea of the size of the boiler is gained when considering that about ninety men were served at nine tables on a platform constructed in the boiler. The platform was of wood, 10 ft. above the bottom of the boiler, and 23½ ft. by 43½ ft. in size. The ceiling, 85 ft. above the platform, was formed by steel drums or headers from which sloped downward the boiler tubes. There are 3,700 of these tubes, whose total length is 23 miles, and 11 steam drums, the largest of which is 4½ ft. in diameter.

Heating of the boiler for the occasion was provided by running warm water in the boiler tubes. Ventilation consisted of opening the damper to the stack. This was effectively used in drawing off excess heat and flashlight smoke.

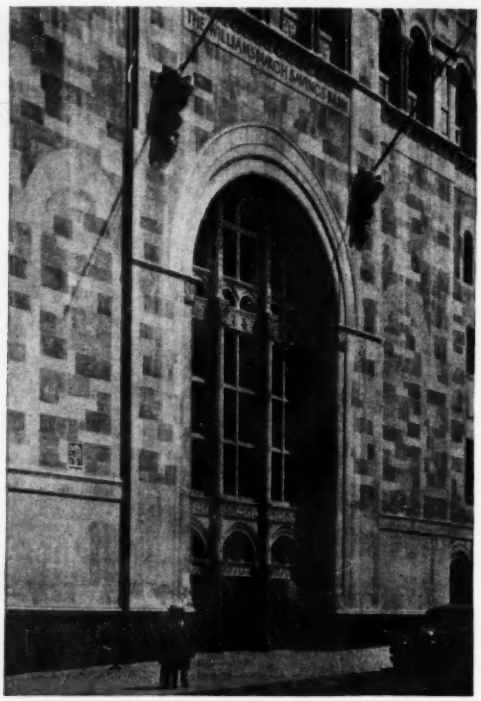
One of the interesting features was the seasoning of the boiler. When the luncheon was concluded, the wooden platform was burned. The fuel used for operation is pulverized coal, 80,000 lb. of which is consumed hourly when running at full capacity. A torch is used for ignition.



Inside of one of the three largest boilers in the world looking directly overhead at tubes. There are 3,700 of these tubes whose total length is 23 miles

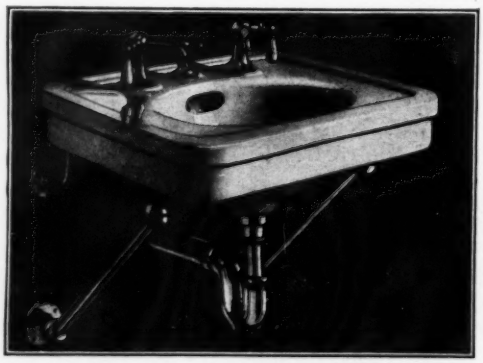
Only city water is used to generate steam. This water is not wasted when once used, but is used over and over again, through turning the steam back to its original state — water. This is accomplished through the use of a condenser having 90,000 sq. ft. of cooling surface and being able to condense 700 tons of steam an hour. Its condensing tubes are ⅞ inch in diameter and 80 miles long.

MEETING ARCHITECTURAL STANDARDS OF QUALITY



Entrance to Williamsburgh Savings Bank Bldg., Ashland and Hanson Places, Brooklyn, New York. HALSEY, McCORMICK & HELMER, INC., architects; ALEXANDER BRYANT CO., plumbing contractors; Solid Nickel Silver plumbing fixtures in Bank offices by MEYER-SNIFFEN CO., New York.*

WILLIAMSBURGH SAVINGS BANK
SOLID NICKEL SILVER* PLUMBING FIXTURES BY MEYER-SNIFFEN



THE Williamsburgh Savings Bank is another leading financial institution that insures the beauty and permanence of plumbing fixtures by using Solid Nickel Silver. Plumbing fixtures of Solid Nickel Silver were specified for these beautiful bank offices because this type of sanitary equipment retains its lustrous, clean-looking appearance in spite of severe service. In their silver-like appearance, fixtures of Solid Nickel Silver are comparable to Pure Nickel and to alloys of high Nickel content. They are corrosion-resisting and easy to keep bright... not easily marred or broken during installation or use. In hardness, toughness and strength they are similar to tough bronze and provide unusual wear-resistance, particularly at the valve seats. For quality plumbing installations, both large and small, the highest architectural opinion agrees that there is no substitute for Solid Nickel Silver.

18% 22 Nickel SILVER

[*Diamond Metal is the name used by the MEYER-SNIFFEN CO. to identify its Nickel alloy used in manufacturing Nickel Silver plumbing fixtures. This is a solid white metal and contains a high percentage of Nickel.]

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

Steam Fittings *and* Accessories

A series of articles devoted to heating devices and their uses

PART I

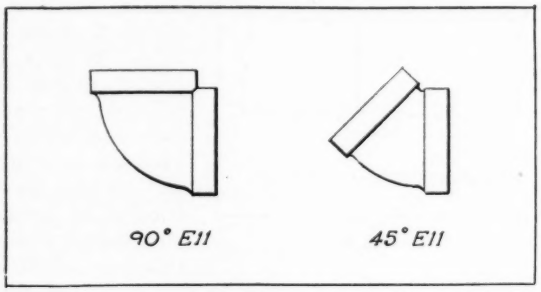


Fig. 1

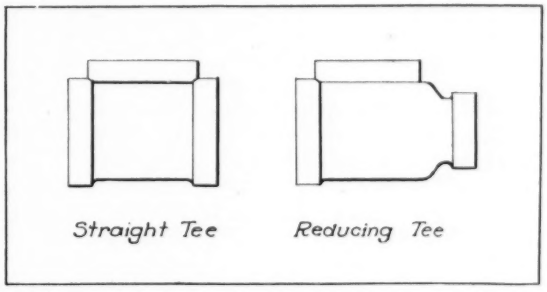


Fig. 2

By HAROLD L. ALT

THERE is an old saying that the best way to really hide something where it will be safe from discovery is to put it in the most prominent and conspicuous place possible and it will be sure to be passed over by anyone looking for it. This is based on human nature which always assumes there is something better just over the fence or just out of sight beyond the next hill.

The heating industry uses pipe fittings in practically every installation—at least in all installations where water or steam are the heating medium employed—and the ordinary garden variety of pipe fitting has become as much a part of the steamfitter's life as his home or his job. And, owing to this very familiarity, his contempt for the pipe fitting has increased with his familiarity. Old stuff! Just pipe fittings! Yet there is much to be said for the pipe fittings and certainly much to be learned about them.

No one really appreciates pipe fittings until they are not available and a job of piping must be installed. Fortunately the heating industry in this country has its needs excellently taken care of in the matter of being able to secure an ample supply and assortment of pipe fittings almost at a moment's notice. But there are places where pipe fittings are not to be had at any price and can only be secured from American manufacturers after considerable delay.

Those are the conditions which demonstrate the true value of pipe fittings, and men have been known to want fittings so badly that when a few of the right size were finally discovered they caressed them and fondled them before taking them out and placing them on the lines.

Even in this country pipe fittings receive considerable attention at times; take, for instance, the matter of testing out the roughing-in. Should a leaky fitting develop in an inaccessible place it may cause considerable trouble.

How many have ever thought of the purposes of a pipe fitting? What does a pipe fitting do anyway? In answer to this it might be said that pipe fittings have two chief aims in life. One is to change the direction in which the line is running and the other is to permit taking a branch off of the line. Fittings which change the direction in which the line is running include 90-degree ells and 45-degree ells (Fig. 1) while fittings for the purpose of branching include all the different styles of tees, (Fig. 2). Then there are fittings for special purposes such as bushings, plugs, caps, etc., each of which has its own particular sphere of action and use.

Common pipe fittings are also produced in several styles, for instance the ordinary gas pipe fitting without any bead (Fig. 3), the regular beaded fitting (Fig. 4), the banded pattern (Fig. 5), and the flanged style (Fig. 6). Fittings are also made recessed so as to give a smooth interior water way, such fittings being used for vacuum

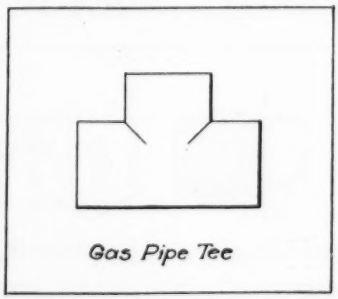


Fig. 3

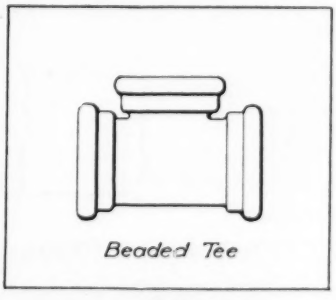


Fig. 4

cleaning lines and sometimes on hot water jobs to aid the circulation.

The question naturally arises as to the why and wherefore of the different patterns of fittings. Like everything else each design of pipe fitting has been developed to meet a certain demand or the requirements of a certain class of work. The gas pipe fittings are the cheapest type of fitting and possess the least strength; they are suitable for gas lines in which the pressures only run to a few ounces and where no expansion strains are encountered. The writer has seen jobs of both heating (including steam and hot water) and water supply systems which have been erected with gas pipe fittings. In such cases leaks and split fittings were frequently the result.

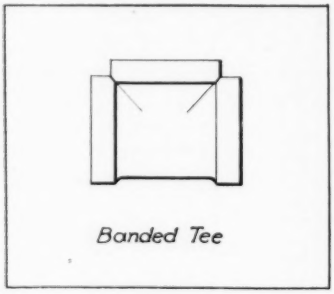


Fig. 5

Cause of Splitting of Pipe Fittings

When joints are made up between steel pipe and cast-iron fittings they either stay tight permanently or, in rare cases, the fittings may split.

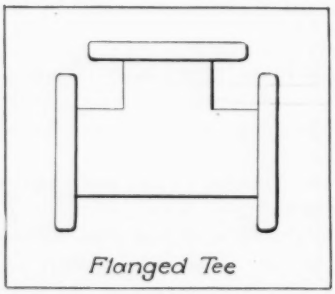


Fig. 6

This brings up the question of why do fittings split? Now split fittings seldom occur from the pressure on the line, especially in these days of low steam pressures. They may result from expansion strains in the lines but far more likely the cause will be found to be solely from screwing the pipe too far into the fitting.

It must be remembered that when a pipe is screwed into a fitting it acts somewhat like a circular wedge (if the term may be used) and tightening of the pipe thread exerts a terrific bursting strain on the fitting. It sometimes happens that when this bursting effect is very close to the ultimate strength of the fitting the addition of pressure on the line is the last straw which breaks the camel's back.

This bursting pressure is the cause of reinforcing pipe fittings around the tappings by a bead or a band which gives extra strength to the fitting just where the bursting force of the pipe thread is greatest. As a result the heavier fitting will permit the pipe being screwed in to a greater degree without bursting and will result in a tighter and stronger job than a lighter fitting.

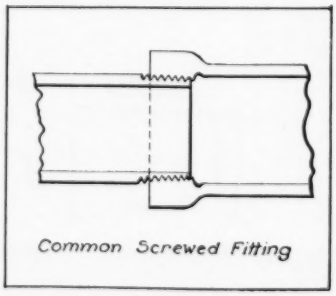


Fig. 7

The ordinary steam-and-water fitting is made up as shown in Fig. 7 and it will be seen that considerable unevenness occurs inside of the fittings due to the ends of the pipe projecting inside of the fitting, and not coming flush with the shell of the fitting. With a recessed fitting the interior is practically smooth as shown in Fig. 8 and for this reason friction is greatly diminished making this type of fitting very desirable for hot-water heating work and absolutely required on vacuum cleaning lines.

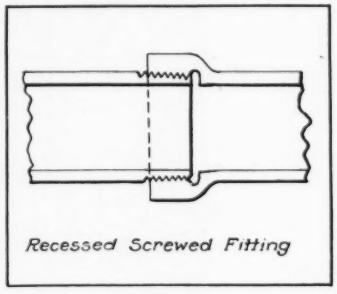


Fig. 8

Pipe fittings are also made in "standard weight" (suitable for any working pressure up to 125 lb. per sq. inch) and in "extra heavy weight" (for pressures up to 250 lb. per sq. inch). As 125 lb. per sq. inch gauge pressure more than covers any pressure met with in ordinary heating work, only standard weight fittings will be considered in this article. Pipe fittings for special services such as on ammonia and hydraulic lines and also on lines carrying superheated steam are made but these are outside the province of this article and will not be considered here.

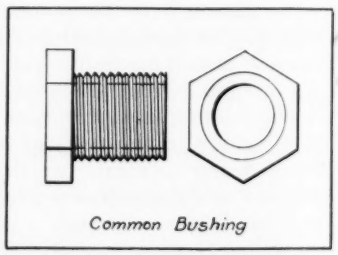


Fig. 9

Bushings are produced for the purpose of reducing the sizes of tappings when they are larger than desired. They are termed "straight" or "regular" bushings when the smaller female tapping is in the exact center of the bushing and are termed "eccentric" when the tapping is off center. Fig. 9 shows the ordinary bushing and Fig. 10 the eccentric type. A reducing coupling either straight or eccentric generally is a better fitting to employ than a bushing owing to the fact that while the eccentric bushing will almost bring the bottoms of the pipe level, the reducing coupling will absolutely do so. This is illustrated in

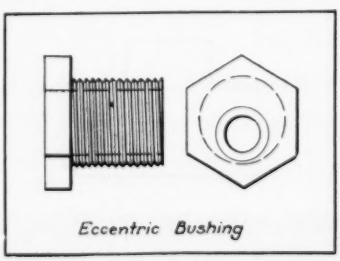


Fig. 10

in detail in Fig. 11, which is well worth careful study.

Terminology for Tees

One point which is a good one to be remembered in connection with tees is how to term them properly. There are several classes of tees as follows:—

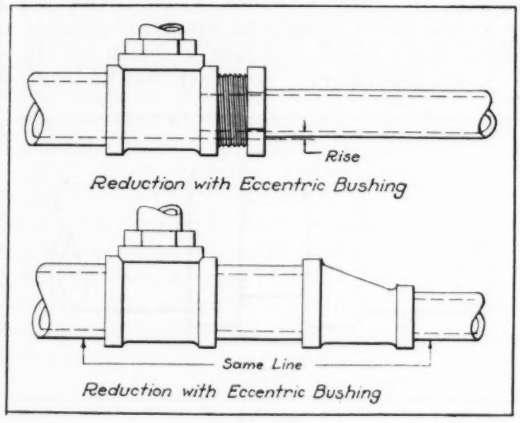


Fig. 11

(a) The common or straight tee with all tappings the same size.

(b) The common reducing tee with the branch tapping of smaller size than the two tappings on the run which are both of the same size.

(c) The reducing-on-the-run tee which has the outlet tapping and one tapping on the run of the same size and the other tapping on the run of smaller size.

(d) The reducing-on-the-run-and-branch tee which has one large tapping on the run and two smaller tappings on the run and branch.

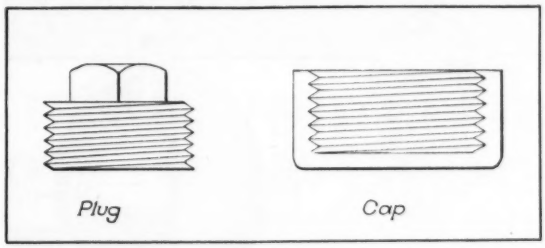


Fig. 12

(e) The bull-head tee which has the branch tappings larger than either of the tappings on the run.

There are two ways of designating tees, both of which are based on the same principles but one is a longer and more exact method while the other is a shorter and sometimes misunderstood practice. In the first method all three tappings of the tee are given

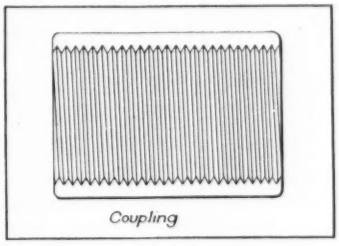


Fig. 13

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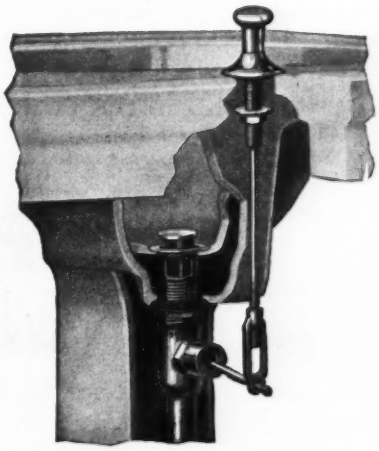

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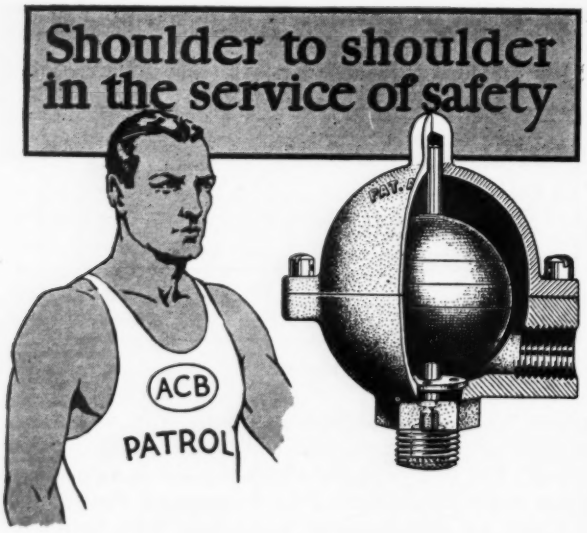

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regardless of size or sameness but the "run" tappings are given first and the branch tappings are given last. Thus a 3-inch × 3-inch × 3-inch tee is a tee with the first tapping (on the run) 3-inches, the second tapping (on the run) 3 inches and the third tapping (on the branch) 3 inches.

Similarly a 3-inch × 3-inch × 2-inch tee is the same as the above except the branch is reduced to 2 inches. But a 3-inch × 2-inch × 3-inch tee means a tee 3-inch (on the run) × 2-inch (on the run) ×

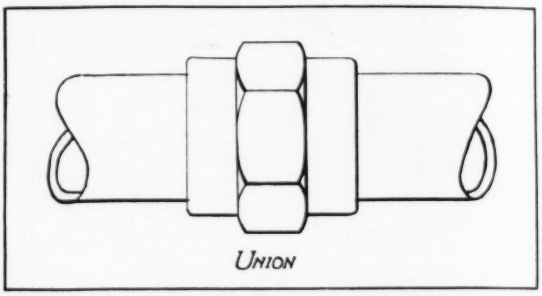

Fig. 14

3-inch on the branch. A 3-inch × 2-inch × 2-inch tee has one 3-inch tapping on the run, reduces to 2 inches on the run and has a 2-inch branch while a 2-inch × 2-inch × 3-inch tee is a bull head with 2-inch tappings on the run and a 3-inch tapping on the branch. In every case the run tappings come first and the branch tappings come last.

Now in the more abbreviated method of designation a tee with all tappings alike is called (for a 3-inch tee) simply a 3-inch tee. With a tee reducing on the branch (for example a 3-inch × 3-inch × 2-inch tee) it is termed simply a 3-inch × 2-inch tee;

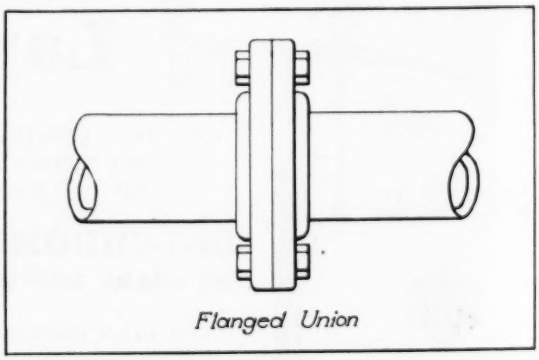

Fig. 15

but as soon as the tee reduces on the run all three tappings are given.

In this scheme a tee designated by one size only is known at once to be a "straight" tee while a tee having two sizes given is immediately recognized as a reducing-on-the-branch tee. Three sizes show either a reducing-on-the-run tee, a reducing-on-the-branch-and-run tee or a bull-head tee according to the sizes noted. The three size tees follow the same method of quoting the run tappings first and the branch tappings last, the same as explained for the first method.

In regard to plugs and caps (shown in Fig. 12) there is little of interest to be said. Plugs, of course, are used to stop the outlets of fittings and caps to terminate the open end of pipe, but a plug is preferable owing to the fact that it can be made of brass at small cost and when so made does not rust up in the joint.

Pipe couplings (Fig. 13) are used to joint lengths of straight pipe together but cannot be disconnected later unless they are made right-and-left thread which requires considerable care in installation in order to get both threads tight at the same time. Unions (see Fig. 14) allow connecting straight lengths of pipe together and removal at any time without difficulty. Brass unions are very good if not too expensive; a malleable iron union with an interior brass ring is also very satisfactory.

Flange unions (see Fig. 15) are generally employed on pipe sizes 2½-inch and over. These unions employ gaskets but owing to the large area of contact and the fact that very serviceable type of flange joint gaskets are obtainable this type of union has proved quite satisfactory.

Employer Liability—for Employee Owned Cars

By George Alan Strader

TIME-SAVING and economical though it may be, the prevailing custom of permitting or requiring employees to use their personal automobiles for business purposes is one that is loaded with potential dynamite for the employer.

General opinion among employers to the contrary notwithstanding, they are as responsible for deaths, injuries and property damage caused by an employee-owned vehicle while it is being used on business (and a great many times when it is not), as though they owned the car themselves.

This liability is placed upon the employer, not at all because of ownership or non-ownership of the negligently driven car, but by the ancient common law tenet which holds principals responsible for the acts of their agents. Thus innumerable courts have held in deciding suits brought against employers for accidents caused by employees—accidents involving everything from a wheelbarrow to a Rolls-Royce.*

There is no way by which the employer can disavow his liability if the acts were committed in the course of business, even though they were done without his knowledge or if they were negligent, fraudulent, deceitful or acts of positive malfeasance. (See The Little Miami Railroad Co. v. Wetmore, 19 Ohio 110, pg. 131.)

Nor can an employer agree with his employee that the latter shall be responsible for accidents. The injured claimant has the prerogative of saying who shall be sued.

That a well-rated employer will be sued in preference to a less financially secure employee is a foregone con-

*If the reader desires legal precedents he is referred to the following cases: The White Oak Coal Co. v. Rivoux, Admx. (88 Ohio St. 18); The Little Miami Railroad Co. v. Wetmore (19 Ohio 110, pg. 131); Clark v. Buckmobile Co. (107 App. Div. 120; 94 N. Y. Sup. 771; quoted 59 S. E. 339); Buckley v. Harkens (114 Wash. 468; 195 Pac. 250).

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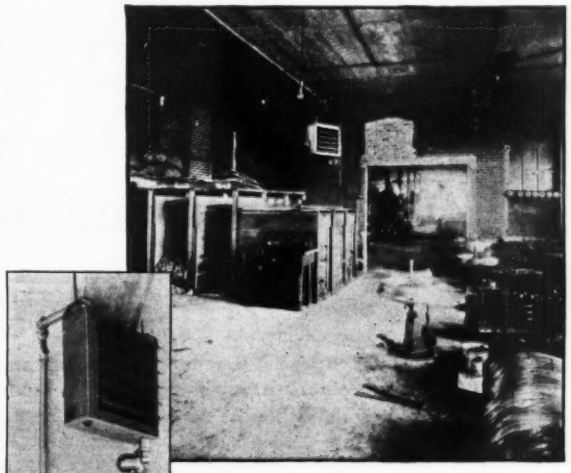

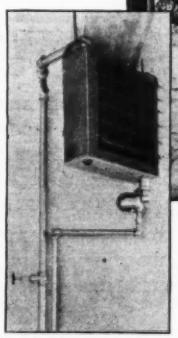

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clusion and that he will be under great expense and heavily handicapped in the course of such a suit—often facing the adverse testimony of the involved employee, who is anxious to pass the onus—is the history of such cases.

"Safety first" measures, aimed at defective brakes, antiquated cars, etc., will minimize the chances of expensive suits. A plan of self-carrier or public-carrier insurance will eliminate the chances of loss within the amount of coverage provided.

The coverage provided by the carriers comes in three broad forms: Contingent Liability Insurance, which protects the employer but not the employee, and which, because it is individually rated to cover the employer's exact needs, is probably the cheapest form for small users; Fleet, or "Blanket," Insurance, which covers both employer and employee and which, because of its convenient "all-in-one" policy form, is well adapted to large users; Personal Automobile Insurance, carried by the employee, protects the employer if he is specifically named in the employee's policy (by rider or endorsement) as a party to the insurance.

Dismissal of this situation with a light "They can't get us for anything—we don't own the cars," is risky business in a day of overcrowded traffic, rattlebrained children, slow-witted adults—and jury verdicts that range from $5,000 for even minor injuries up to $150,000 for permanent injuries and fatalities.

Right of Heating Contractor to Lien on Property Held Jointly by Husband and Wife

By Leslie Childs

GENERALLY speaking, where a heating and plumbing contractor performs work upon property at the instance of the owner, or his duly authorized agent, a lien will lie for the value of the work. And, while the lien statutes of the different states vary somewhat in their terms, they are quite uniform in requiring the consent of an owner, express or implied, to improvements before a lien may be asserted.

In the light of which, it is highly important that the approval of the owners of property be obtained before work is done, if the right to a lien for the security of the account is depended upon. And in particular is this true where property is held jointly by husband and wife, for, by the weight of authority, both husband and wife must order such improvements before a contractor's lien will attach to the property.

There is real danger to contractors in overlooking this well settled point in building law, that has frequently been the cause of substantial loss. And, as an illustration of the importance of care in cases of this kind, the Indiana case of Kohring v. Bowman, 137 N. E. 767, is well worth a brief examination.

Husband Contracts for Heating Plant

In this case the defendants were husband and wife, and were buying property under a contract which made them owners by the entireties, or joint, when the property was fully paid for. They were living in the property in question, and the husband entered into a contract with the plaintiff, a heating and plumbing contractor, for the installation of a heating plant. Pursuant to this contract, the plaintiff completed the work, and, upon the failure of the husband to pay, filed a lien upon the premises for the amount due.

Now, at this point it should be noted that, the wife had nothing to do with this contract; she did not sign it, nor did she make any representations or promises to plaintiff about it. The most that could be said was that she was living with her husband in the premises at the time the heating plant was installed.

In due time the plaintiff brought the instant action to foreclose his lien upon the interest of the defendants in the property. The defendants thereupon set up that the property was held jointly, or by entireties, that the defendant wife had not signed the contract, and contended that the lien could not be enforced for that reason.

In answer to this, the plaintiff took the position that the husband could bind both himself and wife by such a contract since the heating plant tended to improve their joint property. Further, the plaintiff contended that since the wife was living in the property when the work was being done, and did not openly object thereto, she should be bound by virtue of her silence.

Upon the trial of the cause, however, the trial court refused to allow the lien, and simply rendered a personal judgment against the husband. From this the plaintiff appealed to the higher court. Here, after a review of the evidence as it has been outlined, the court in passing upon the right of the plaintiff to a lien, in part, said:

Contractor Denied Lien

"We have no doubt but that leasehold interests held by a husband and wife or a fee held by them by entireties may be subject to a mechanic's lien. But before a mechanic can have a lien on the property so held, he must show that he has a contract with both husband and wife. A contract with one of them alone is not sufficient to entitle him to such a lien. * * *

"Neither husband nor wife alone can enter into a contract for the improvement of such property, and

(Continued on Page 161)

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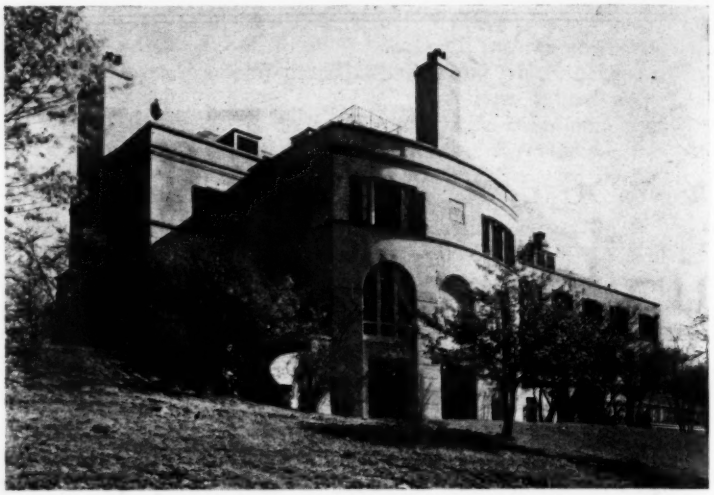

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ONE PIECE WATER CLOSET

R. M. STARBUCK, JR., *reviews the aid offered vocational training schools by our National Government, in*

Part-Time Plumbing Schools and Classes

in the hope of encouraging a wider use of Federal aid to train better workers for the industry

IN A recent article devoted to the subject of federal aid to plumbing schools and classes, a list of schools receiving such aid was published.

That list showed that with a few scattering exceptions, the part-time vocational plan of education, as far as it applies to the plumbing trade, is almost entirely confined to the states of Ohio, Pennsylvania and Wisconsin. In each of these three states the part-time plan seems to be in extensive use. This situation was a matter of considerable surprise to us. The plan in question is so capable of providing a vocational education to boys and young men who would otherwise have great difficulty in obtaining any education whatever, that it seemed regrettable that more extended use is not being made of the plan.

We feel that the reason it is not more generally applied is that it is not fully understood. To give a better understanding of the part-time educational plan, we have written this article.

A number of years ago there was established as one of our government bureaus in Washington, the Federal Board for Vocational Education. The principal function of this board was the distribution, among the 48 states, of large federal appropriations for the aid of vocational education. In connection with this work, practically every phase of vocational education has received the attention of qualified educational experts, and has become standard to a large extent.

Government Bulletin Published on Subject

Because of this fact, we think we can do no better in handling our subject than to refer very largely to the information furnished in Bulletin 17, issued by the above named board. The title of this publication is "Trade and Industrial Education—Organization, Administration and Operation." Its subtitle is "A Discussion of Standards."

In approaching the general subject of trade schools, this bulletin makes the following classification:

"Under the national vocational education act . . . six types of trade or industrial schools or classes may be organized, as follows:

1. Evening industrial.
2. Part-time trade extension.
3. Part-time trade preparatory.
4. Part-time general continuation.
5. Unit trade (commonly known as day trade).
6. General industrial (in cities under 25,000)."

The fourth of the above classifications does not definitely interest us in this present article, and we shall therefore confine our attention to the second and third classifications only. In defining these, the bulletin makes the following statements, which definitely differentiate between the two types of instruction:

"A trade extension part-time school or class established under the national act, is a public school or class established and maintained in any community for the purpose of giving instruction of less than college grade, to persons over 14 years of age, who have entered upon the work of a trade or industrial pursuit, which instruction shall further fit persons taking it, for useful employment in the trade or industrial pursuit in which they are employed."

"A trade preparatory part-time school or class established under the national act is a public school or class established and maintained in any community for the purpose of giving instruction of less than college grade to persons over 14 years of age who have entered upon employment, which instruction shall be designed to fit these persons for useful employment in a trade or industrial pursuit other than the one in which they are employed."

In a part-time trade extension class, a plumber's apprentice could receive instruction in plumbing practice; in blue-print reading for plumbers; in state and local rules and regulations for the installation of plumbing; and in other allied subjects, all related to plumbing, and "such instruction would constitute part-time work, but only in case it were given between the hours of 8 a. m. and 5 p. m.; which are assumed to be the limits of the plumber's working day."

Instruction to a trade preparatory part-time class "might, if sufficiently elementary, be given between 8 a. m. and 5 p. m. to a group of pupils employed as messengers, clerks, soda-fountain boys, and in other occupations, excepting plumbing, the instruction being devised to prepare for entrance into the plumbing trade. Such a class would be a part-time trade preparatory class. Its work would seldom, if ever, coincide with that of a trade-extension class dealing with the same trade. The function of such instruction would be to serve as an entering wedge, to be followed later by part-time trade-extension work of the apprentice type."

Difference Between Trade Extension and Trade Preparatory Courses

Thus the only difference between the part-time trade extension and trade preparatory courses is that the former is for plumbers' apprentices or others actually working at the plumbing business, while the latter is designed for those not yet working at the plumbing trade,

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but who desire to train themselves for it while temporarily employed at some other line of work.

We are more particularly interested in the trade extension line of work, and so will confine our attention chiefly to that plan.

Some of the chief features of the part-time school, as presented in the bulletin previously mentioned, are the following:

"The general objective of all types of part-time schools, for which provision is made in the act, is to promote the civic and vocational intelligence of employed workers 14 to 18 years of age. The importance which was attached to this particular type of organization by the framers of the national act, is indicated by the provision that at least one-third of the allotment for trade, home economics, and industrial education must, if expended, be used for the salaries of teachers of part-time schools.

"The feature of part-time education which makes it of great popular interest and of far-reaching social value, is its dependence upon co-operation between schoolmen, employers, and employees; that is to say, upon co-operation which is in the largest sense social, and which embraces the entire population.

"Part-time education is a community enterprise embracing, directly or indirectly, nearly every phase of community life and welfare. Every element of the wage-earning population may enter into this co-operative enterprise. The only definition given to the scope of the work is that marked out by the needs of the workers themselves, either for more schooling in general, or for special vocational training in preparation for entrance into a trade, or for promotion within a trade already entered upon.

"These schools provide opportunity for the young worker for continuous improvement, and open up to him the way of continuous advancement, in proportion as he acquires new trade skill and efficiency and new capacities for citizenship. They bring the teacher into the shop and the worker into the school. They tend to make education what it should be—a lifelong process of developing new efficiencies. The worker does not leave school to enter the shop. He is graduated into the shop, where his wage work becomes a practical basis for continuing his schooling.

"In the field of part-time instruction clearly lies the great opportunity for school administrators and for employers and labor as initiating agencies, to promote the welfare of every class of workers, the opportunity to extend the public school system to embrace the whole community, and to make education a dynamic social force working for the general improvement of our whole citizenship."

Division of Trade Extension Schools

The federal vocational board divides the subject of part-time trade extension schools into five principal classifications, but we feel that only three of these interest our industry. The information concerning these classifications is as follows:

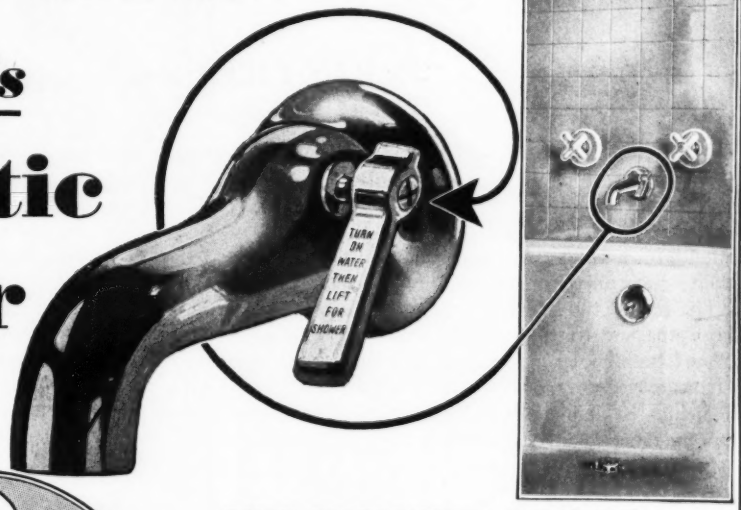
"1.—*A special group of employed minors or apprentices* from a given occupation, attending a trade school four to eight hours a week during the working day. One

(Continued on Page 113)

Safe Showers

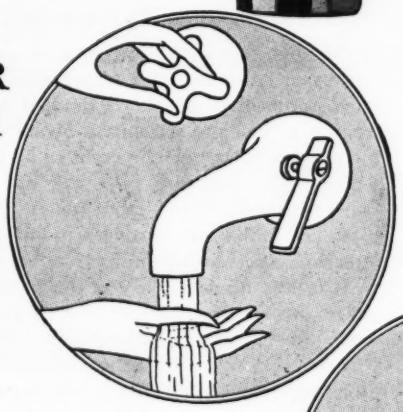
With This

Automatic Diverter



TEMPER WATER AT SPOUT

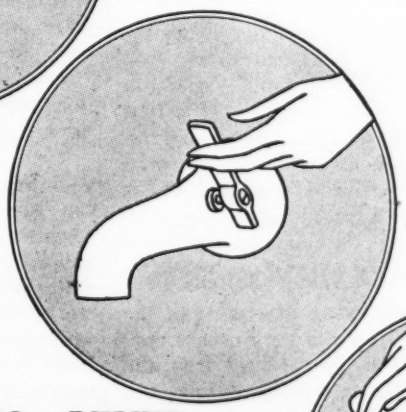
Eliminates danger of scalding.



FIVE EXCLUSIVE FEATURES IN A NEW BATH FIXTURE

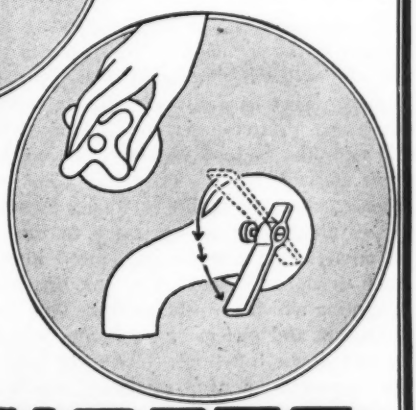
1. Improved shower head.
2. Automatic diverter—valve on, not in, wall.
3. Valves readily accessible from face of wall.
4. Pop-up Bath Waste with "chain and plug" simplicity.
5. Standardized unit in faucet construction.

All available in three styles—all-metal or china trim. Complete—practical—harmonious design throughout.



LIFT LEVER FOR SHOWER

Water instantly diverted from tub to shower merely by lifting lever.



SHUT OFF VALVES—LEVER DROPS BACK AUTOMATICALLY

Diverter valve has no rubber—no spring. Lever held up by water pressure. Lever falls by gravity when water's shut off. Shower's *always off* until user lifts lever. Safe to operate—*easy to install.*

Write for complete information.

THE CHICAGO FAUCET COMPANY
2700-22 North Crawford Avenue Chicago

CHICAGO FAUCETS

Softening Water *by the* Zeolite Method

By RAY RILEY *and* V. F. LAMELA

A ZEOLITE water softener is composed of two principal parts, the mechanical water softener and the zeolite contained in the softener. The mechanical softener consists primarily of a container provided with a valve bank and a distribution means. The zeolite rests on the distributor in the container.

The size of the softener depends upon the hardness of the water and the quantity of water to be delivered by the softener between regenerations. Generally speaking, a hand-operated household water softener is from 12 to 20 inches in diameter and from four to five feet high. The industrial sizes are much larger and frequently consist of multiple units to insure continuous delivery of soft water.

The valve bank on a water softener provides a means for controlling the flow of water into and from the softener. The inlet to the softener may be located either below or above the bed of zeolite in the softener. Likewise, the outlet may be at either end of the softener. Most companies at present have the inlet for raw water in the bottom and the outlet is placed in the top of the softener. In the operation of such a softener, the water passes upward through the bed of zeolite during the softening period.

The distribution means in the softener distributes the water so that it passes uniformly and evenly through all parts of the bed. Good distribution is quite essential to the successful operation of a water softener. The type of distributors used vary considerably. Good distribution is more difficult to secure in the large industrial machines than in the smaller domestic machines and is an important point to take into consideration where the softener is operated more or less continuously.

Regeneration of Domestic Water Softeners

Regeneration is the term applied to the salting of the zeolite in the softener. The zeolite in the softener during the softening operation takes up hardness from the water. This hardness consists essentially of lime and magnesia. After a certain amount of water has passed through the bed of zeolite, it becomes saturated with lime and magnesia. After this point of saturation has been reached, the zeolite no longer completely softens the water and it is then necessary to treat it with a brine solution which may be introduced into the softener as such or as solid salt. The salt displaces the lime and magnesia which is in the zeolite. This displaced lime and magnesia and excess salt solution, which must be used, is run down the sewer. In case solid salt is used in the regeneration of a softener, it is added through an opening in the top of the softener and is then dissolved and washed down through the bed. In case the salt is added as a brine solution, it may be introduced above and washed down through the zeolite bed as in the case of solid salt or it may be introduced in the bottom of the softener and washed up through the bed. Both types of regeneration are used by different companies.

In case the water is run through a zeolite water softener too long before regeneration, the water is not softened. The zeolite becomes laden with lime and magnesia to such an extent that the softener is difficult to regenerate. Such cases require a double regeneration to get the softener to deliver a water of zero hardness. The zeolite is not permanently injured. Its efficiency is somewhat impaired for the following run. This impediment is completely overcome during the second and third runs.

Hardness Expressed in Terms of Calcium Carbonate

The hardness of water is usually expressed as so many grains of hardness. The expression five grains of hardness means that in every gallon of water there are five grains of calcium carbonate or its chemical equivalent of another metal which produces an insoluble soap. All hardness is expressed in terms of calcium carbonate. The expression parts per million is often used. One part per million of hardness is only one-seventeenth as much hardness as a grain per gallon.

It is only necessary to test the water from the softener when the time for regeneration is approaching. A good procedure is to find out how many days the softener will furnish soft water, then, under normal operating conditions regenerate the softener one day before it runs hard. Such a procedure guarantees soft water all the time.

There is considerable discussion regarding the taste of softened water. It is doubtful if the average individual can detect any difference in taste. It is true that when some softeners are installed, the first run of soft water will be slightly alkaline. Such an alkaline taste can be easily detected. This alkalinity soon disappears.

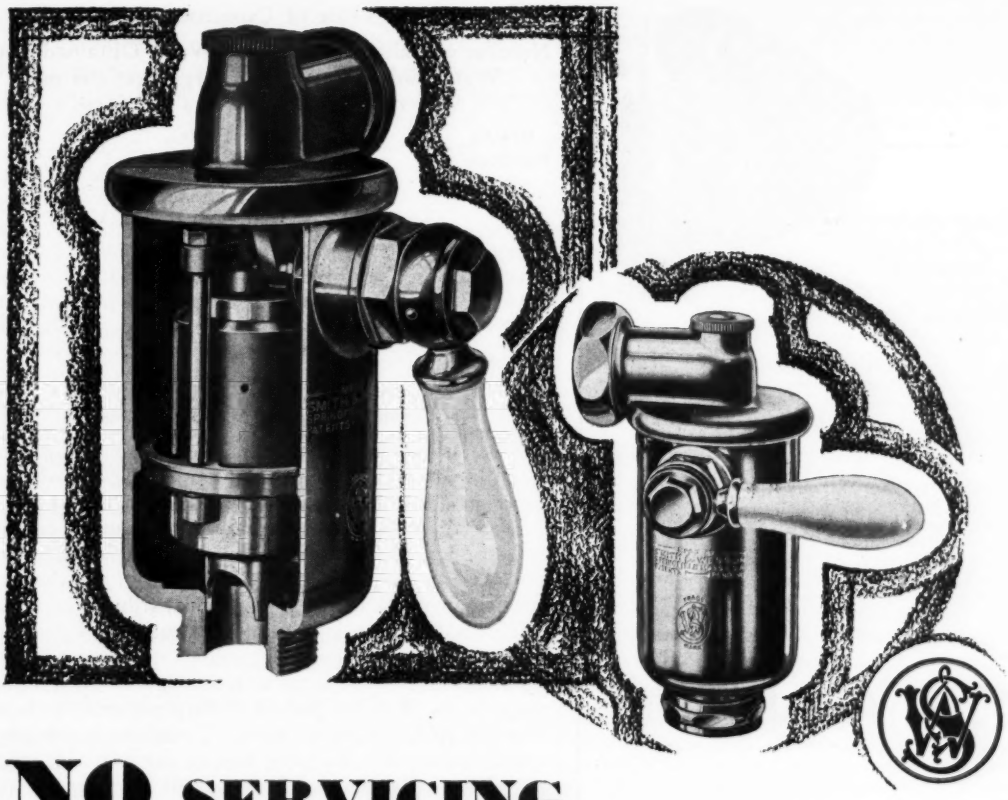
The health department of a city can usually furnish information concerning the hardness of the water. The State Geological Survey Department can furnish information concerning the average hardness of water in a given region. Prospective purchasers of water softeners can send samples of their water into the laboratory of the people furnishing the softener who will furnish them with the desired information.

Soft water is used successfully in cooking. In some cases it is preferable to hard water. It is more desirable for making coffee and cooking such foods as peas.

Some waters are so hard that they cannot be economically softened. The alkalinity of some waters prevents softening by the use of a zeolitic water softener.

Waters do not lose hardness by storage in reservoirs.

The capacity of a water softener is determined by the hardness of the water to be softened. The following table indicates the reduction capacity of a water softener when handling waters of increasing hardnesses:



NO SERVICING REQUIRED *for the* SMITH & WESSON Flush Valve

LOOK at the simple construction of this valve, and you will readily see why it requires no servicing.

It is all-metal. There are no parts to deteriorate in water, eliminating the primary need for servicing in flush valves. The number of parts has been kept to a minimum and the operation cycle is extremely simple. Adjustment is made, and the valve is drained from the outside.

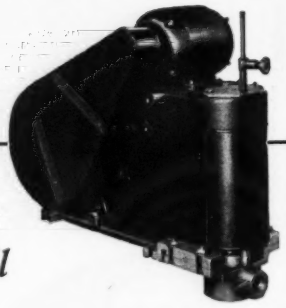
For nearly three years these valves have given dependable, attention-free service under all conditions, proving that *organized servicing* is unnecessary. This is a natural result of the exhaustive study made of flush valve requirements before the Smith & Wesson Flush Valve was designed and produced.

Send for further details

SMITH & WESSON

FLUSH VALVE DIVISION

SPRINGFIELD, MASSACHUSETTS



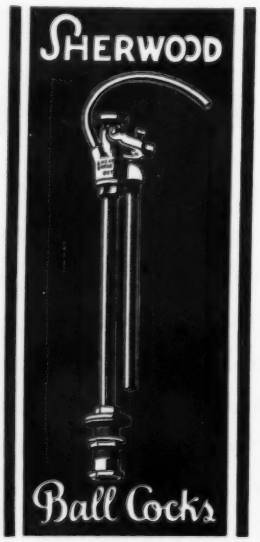
In selling this system, you sell a "salesman"

Every time you sell a well water pumping system, you create a prospect for a complete plumbing installation. If the system is satisfactory in every way the prospect will return to you when he wants his barns and his home piped and equipped.

There is no better way of insuring his return than recommending this Crane-Warlo Deep Well System. Every part of it is made to give enduring, untroubled service. It operates with a simple single stroke. Through gravity its positive, overhead system carries a flood of oil to every pin and bearing. Such efficiency adds years of life to every part. Offered at prices ranging from $150 to $259 this No. 850 will pump 125 to 510 gallons hourly from depths to 250 feet. More than enough water to amply supply kitchen, laundry, bath, barns and garden.

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVENUE, CHICAGO
NEW YORK OFFICE: 23 W. 44TH STREET
Branches and Sales Offices in One Hundred and Eighty Cities



What's the Reason for Sherwood Success?

Back of the success of any commodity is always a story of service and satisfaction.

When Sherwood started to build ball cocks, it was with the knowledge that many ball cocks which the plumber was asked to buy were not of the kind that could ever build a reputation for service or satisfaction.

Sherwood determined to eliminate leaks and whistling and gurgling from its ball cock. It determined to make it one that would close against any city water pressure. And Sherwood determined to build its ball cock at a price that would put it within the reach of every installation, no matter how modest.

Sherwood's success is explained by the fact that it has unfailingly lived up to its promise to provide a good ball cock.

Plumbers everywhere have come to know Sherwood for a ball cock of highest quality. They demand it for all of their work.

SHERWOOD BRASS WORKS
Jefferson and Mt. Elliott Aves. DETROIT, MICH.

REPRESENTATIVES
J. A. Riordan Co. (Inc.), 1600 E. 7th St., Los Angeles, 303 Colman Bldg., Seattle
E. S. Thompson, 2401 Chestnut St., Philadelphia
Fred G. Hoffman, 831 Edgewood Ave., Trenton, N. J.
Fred S. Wisely, Plymouth Bldg., Minneapolis

Table of Capacities:

Number of Gallons of Softened Water Obtained from Water Softener Between Regenerations on Waters of Various Grains Hardness

Grains Hardness	DF-2	Grains Hardness	DF-2
6	2900	24	700
8	2100	26	650
10	1700	28	600
12	1400	30	560
14	1200	34	500
16	1050	38	440
18	940	40	420
20	840	45	375
22	770	50	340

Economic Value of Soft Water

From an economic standpoint, soft water can be evaluated by considering the losses due to the use of hard water in domestic and industrial installations.

Soap Waste. The precipitation of soap by calcium and magnesium is the most universally recognized disadvantage of hard water. On the basis of the chemical reaction involved between soap and hardness in water, 0.85 pound of soap is required to neutralize 1 grain of hardness per gallon per 1000 gallons of water. Different authorities do not agree with this figure. Their values range from .51 to 3.4 pounds of soap per grain of hardness per 1000 gallons of water. Variations in the soaps used and the water no doubt account for this wide range of values. The figure 1.7 pounds of soap wasted per grain of hardness per 1000 gallons appears to agree with laundry experience.

A number of interesting figures are available to emphasize the economic importance of soap waste due to hard water. When such calculations are applied to municipalities, they are based on fairly reliable assumptions as to the amount of water used for washing with soap and the completeness with which the soap reacts with the hardness in the water. One gallon per capita per day is usually taken as the amount of water used for washing. On this basis, the water commissioner of St. Louis in 1922 reported that the removal of 4.2 grains of hardness from the city water resulted in a daily saving of $920.00 worth of soap.

Buswell, Chief of the Illinois Water Survey, has estimated that a town of 40,000 inhabitants using a water of 17.5 grains hardness wastes a ton of soap per day. He also points out that it is generally conceded that the saving in soap alone is greater than the cost of municipal softening. The other benefits of soft water are clear gain. If this is true in the case of cities where all of the water is softened, it is clear that for domestic installations and laundries where it is practicable to soften only that portion of the supply where it is needed, the saving is much greater.

Lime Soaps

The waste of soap in the laundry, is perhaps not the most important one. The lime soaps have a tendency to stick to the fabric and are not easily rinsed from it. This causes spots and stains on the laundered article. Thus, the laundry with a supply of soft water is in a position to turn out a better quality of work to the trade.

The insoluble lime soaps (slimy curd) formed with

hard water are often highly objectionable in many processes of the textile industry. The lime soaps coat the fibers, render the cloth stiff and hard and sometimes spotted. In the dyeing end of the process these soaps may react unfavorably with the mordants and dyes or may coat the fibers and prevent them from taking the dye uniformly.

Lime soaps are popularly recognized as the slimy curd which is produced in hard waters with soap. Lime soaps are not injurious when in the proper place. Lime soaps are frequently used in mineral oils to form solid greases for lubrication purposes. Since lubrication has no place in the wash basin, wash tub or dye vat, one is confronted with a perfectly useful product in the wrong place. The purpose of softening water is to prevent the manufacture of this useful article in the wrong place.

The linen bill of a hotel of 500 rooms is approximately $30,000 annually. It is authoritatively estimated that soft water will increase the life of linen at least a third. This means an annual saving of $10,000, which is $20.00 per room per year. When one stops to think of the number of hotels in the country and then multiply the number of rooms in all these hotels by $20, one arrives at a figure, which resembles a congressional appropriation. This is a single item of waste which is unnoticed by countless thousands, yet it takes place continually.

Effect of Scale from Hard Water

Another equally serious effect of hard water is the formation of scale by hard waters when heated. The exact determination of loss due to scale in steam boilers is rendered difficult by the fact that the water softening process removes turbidity and corrosive substances along with scale forming materials so that a comparison of operating costs with and without treatment frequently includes other benefits than the removal of scale alone.

The following table shows the loss in fuel efficiency due to boiler scale**:

Character of Scale	Thickness	Composition	Loss of Efficiency Per Cent
Hard	1/50"	Mostly Carbonate	9.4
Soft	1/23"	Mostly Carbonate	7.2
Hard	1/32"	Mostly Carbonate	8.5
Soft	1/25"	Mostly Carbonate	8.0
Hard	1/25"	Mostly Sulphate	9.3
Hard	1/20"	Mostly Sulphate	11.1
Soft	1/16"	Mostly Sulphate	10.8
Soft	1/16"	Mostly Carbonate	11.0
Soft	1/16"	Mostly Carbonate	12.4
Hard	1/16"	Mostly Carbonate	12.6
Soft	1/11"	Mostly Carbonate	15.0
Hard	1/8"	Mostly Sulphate	15.9

** University Illinois Engineering Exp. Sta. Bulletin No. 11.

Conservative estimates place the loss in fuel efficiency at 10 per cent for each 1/16-inch thickness of scale.

In estimating the saving through treating plants, the American Railway Engineering Association in 1912 determined by actual tests that each pound of incrustants removed from boiler water was equivalent to a saving of seven cents in the cost of repairs and fuel. Adjustment of charges for fuel and boiler repairs to date brings this figure to thirteen cents. The 1925 report indicates

Four Heating Seasons Without a Single Complaint

NO REPAIR JOBS — NO REPLACEMENTS

With many Johnston Oil Burner Boilers in use throughout the country during the past four heating seasons, *not one complaint has been received from dealers, architects or users.* There have been no repair jobs; no replacements; no service calls. Every installation wins friends for the heating contractor. Dealers selling this boiler make a profit *and keep that profit.*

A BOILER WORTH INVESTIGATING

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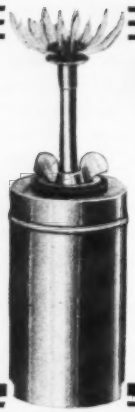
JOHNSTON BROTHERS, INC. - FERRYSBURG, MICHIGAN



GAS-O-LITE

a good lighting torch

Gives eight times the light of a candle. Cheaper and more convenient to use than candles. Does away with dripping wax. Burns two to three hours with one filling of gasoline. Absolutely safe.

If your jobber has not stocked these we will supply you.

LITTER TORCH CO.

MERIDEN :: CONN.

Paragon Offset Ball Cock

FOR tanks with supply close to corner. You don't touch the supply connection when you renew the bronze seat. And the lead refill neither splits nor corrodes. A quality fitting throughout. Write for Folder on complete line.

Through Your Wholesaler

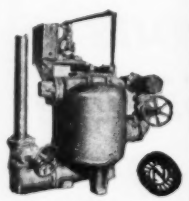
The CENTRAL BRASS Mfg Co.

PARAGON DIVISION CLEVELAND O.

JENNINGS Sewage Ejectors are used to advantage in pumping unscreened sewage and grease drainage from buildings where toilets or drain pipes are below street sewer level—moving crude sewage and drainage from low-lying districts—handling sludge and effluent at disposal plants. Pneumatic in operation, their efficiency cannot become impaired by the caking of solid matter on moving parts.

Furnished in capacities ranging from 30 to 1,500 g.p.m. Heads up to 50 ft.

Write for Bulletin 67 and 103.



Jennings Sewage Ejector

NASH ENGINEERING CO.

41 Wilson Rd. So. Norwalk, Conn.

Jennings Pumps

Beautiful Colors in China

Turquoise Blue

Antique Gold

Pearl White

Jet Black

Old Ivory

Shell Pink

Dove Gray

Sea Green

No. 20 Double Action Lever

The Indiana Brass Co.

Frankfort, Indiana

that this revised figure is too low. The report of the Water Service Committee of this association, for 1925, gives the saving per locomotive per year due to softened water as averaging $1,000 for each 10 grains of hardness. Where the raw water is very bad, the average yearly savings run as high as $8,000 per locomotive. Knowles estimated that the use of an average Iowa hard water involved a yearly expense of $4,000 per locomotive.

Bigelow and Stevenson have shown that hard water causes a hardening of peas and ripe beans, and an incrustation of some of the chemical constituents in beets, when used in canning these vegetables. They recommend the use of zeolite softened water for canning these vegetables.

The type of water used in tanning, fermentation, artificial ice industries, paper mills, glue factories, sugar refineries, starch works is an important problem. A brief discussion of each of these would lead into nearly every field of chemical engineering.

Commercial Aspects

Much has been said and written recently concerning the merchandising ability—or lack of it—possessed by the average plumber. The proponents of the idea point out the outstanding merchandisers of the plumbing industry. The opponents of the idea point to these examples as exceptions rather than the rule.

The following quotation is worthy of considerable thought: "One of the quickest roads that leads to a comfortable bank balance, high credit standing and ultimate success in the plumbing business is learning how to merchandise plumbing accessories and specialties. This branch of the trade has produced, in the sale of anything from a washer to an electric washing machine, more cash sales with less expense in overhead and no labor involved, than in any other part of the business."

Soft water, once a luxury in many districts of the United States, is now considered a necessity. People desire soft water to avoid the inconveniences and costs of hard water. Hard water is one of the most disagreeable and expensive of household commodities. It is disagreeable because of the slimy curd which is formed when the water is treated with soap. It produces an appalling waste of soap. No lather can be formed and consequently no cleansing achieved until all the hardness has been precipitated at the expense of soap. This stickiness of the curd formed is a further inconvenience. It is expensive because of the scale which is formed in hot water tanks, heating coils and cooking utensils. The use of hard water creates losses in labor, repairs, fuel and the lessening of the life of various items of plumbing in the average household. It is costly because of the expense involved in providing soft rain water to take its place.

◆

No Time to Read

He who complains that he has no time to read, is one who does not fundamentally care for making contact with the minds of others. We always find time to eat. When we have realized that mental food is equally necessary to the maintenance of our intellectual life, we shall take as much time as is necessary for reading also.—*St. Louis Public Library.*

SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

National Pipe Association Sets Convention Date

The National Pipe and Supplies Association has decided to hold its 1930 convention in Pinehurst, N. C. The time chosen is for May 5, 6 and 7, and the convention will be held at the Carolina hotel, which is being taken over in its entirety by the association in expectancy of a large attendance. In addition, the Chesapeake and Ohio railroad has agreed to run special pullmans from all large cities, running directly to Pinehurst without change.

The association has deemed it advisable to have its business meetings from 9:30 a. m. until 1:00 p. m. each day, allowing the afternoon for recreation and contacting with the manufacturers and visiting with each other. Under the chairmanship of J. Harvey Borton, the convention committee is developing an excellent business program.

◆

Republic Steel Co. to Be Third Largest in Industry

The Republic Steel Co. will be the name of the third largest steel corporation in the United States, when final plans for the merger of a number of important independent steel interests have been approved. The consolidation plans, representing a $350,000,000 merger, would include, with their subsidiaries, the Republic Iron & Steel Co., Youngstown, Ohio; Central Alloy Steel Corp., Massillon, Ohio; Donner Steel Co., Inc., Buffalo, N. Y.; and the Bourne-Fuller Co., of Cleveland, Ohio.

The directors of the companies involved have voted approval of the merger, and each company will submit the detailed plans to its stockholders for ratification.

Principal executive officers of the new company will include T. M. Girdler, formerly president of the Jones & Laughlin Steel Corp.; E. T. McCleary, president of the Republic Iron & Steel Co.; B. F. Fairless, president of Central Alloy Steel Corp.; W. T. Witherow and R. S. Hall.

◆

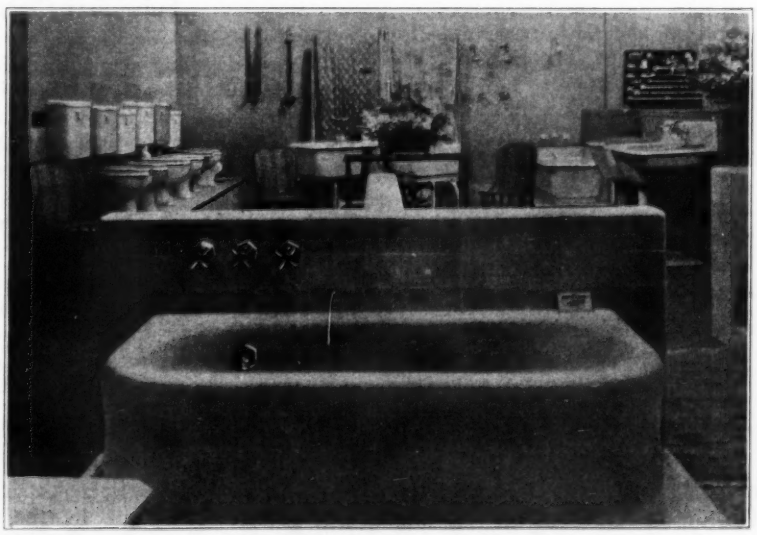
The National Plumbing and Heating Institute Now a Living Organization

The directors of the National Plumbing and Heating Institute, on December 16, in New York City, elected Fred W. Swanson, of the Globe Machinery & Supply Co., Des Moines, Ia., commissioner, as well as president. Mr. Swanson's entire time during the year 1930 will be devoted to the work of the institute.

In a statement to DOMESTIC ENGINEERING, Mr. Swanson said:

"No greater expression of faith in our industry could be made than the expression of faith made by the directors of the institute at their last meeting in New York City when unanimously and wholeheartedly a program was developed and approved which committed them to the continued effort to secure throughout the entire industry the adoption and observance of uniform trade practices and the establishment of more equitable trade relations between those engaged in the business of manufacturing of or in the business of dealing in plumbing and heating supplies and allied articles.

"While the work of the institute is of vital value to



View of the new showroom of Samuel Sloan & Co., at 67-71 Exchange street, Rochester, N. Y.

manufacturers and wholesalers it is very significant that the commissioner was charged by the directors to make it of the same value to that third equal great branch of the industry—the contracting branch.

"While naturally the work of the institute must be centered upon the prime purpose of the organization,

F. W. Swanson

trade practices and trade relations, it is the belief of the directors that the institute can be of increasing value in centering the attention of the industry upon those things that are important for the best in co-operative effort between all. As broad policies as possible will be inaugurated to the end that as much service as possible can be rendered the entire industry.

"There is a more optimistic feeling about the future of our business, all branches, than there has been for years past and if this optimism and hopefulness for better things can be partly realized through the actual securing of material benefits so justly due our plumbing and heating industry, the work of the institute will be well worth while.

"In behalf of the institute and those responsible for its success, may I ask for the cordial support of each and every one interested in the best welfare of our industry, whether manufacturer, wholesaler or contractor, and in return may I promise the utmost that the institute can do to make itself felt for the good of all in the industry."

◆

Moves Into Larger Quarters

The Scovill Mfg. Co., Waterbury, Conn., recently moved its San Francisco, Calif., branch into larger quarters at 434 Brannab street. The offices of the Scovill Mfg. Co. and the Plumbers Brass Goods Division will be maintained on the first floor of the building. George D. Engle is district sales manager for the Scovill company, and K. M. Reid occupies a like position with the Plumbers Brass Goods Division.

◆

Linde Co. Establishes Portland, Ore., Plant

The Linde Air Products Co., New York City, announces the opening of an oxygen plant at 60 Knott street, Portland, Oregon. A. D. Davis is superintendent of the Portland Linde plant, while D. F. Fox, whose headquarters are at 114 Sansome street, San Francisco, Calif., is district superintendent. R. G. Daggett is division superintendent, with headquarters at the San Francisco address.

◆

Opens Chicago Office

Shaw-Perkins Mfg. Co., Pittsburgh, Pa., has just recently opened an office in the Straus building, 310 South Michigan avenue, Chicago, Ill. This office is in charge of A. H. Jolliffe, formerly branch manager for the United States Radiator Corp. at Minneapolis, Minn., and recently secretary of the Wolff Co., Chicago.

◆

Eastern Supply Program Committee Meets

At a meeting of the program committee of the Eastern Supply Association, over which President Joseph Maynard presided, on December 10, at the Astor hotel, New York City, February 12 and 13, 1930, were set as the dates for the next meeting. A program of decided value to members has been outlined for the two days' session which is to be held at the above mentioned hotel.

◆

Richardson & Boynton Co. Opens New York City Branch

The Richardson & Boynton Co., New York, N. Y., has announced the establishment of a New York City branch at 260 Fifth avenue, to serve the company's business in New York state, Connecticut, New Jersey and the northern part of Pennsylvania. H. L. Anness has been appointed as the manager of this branch with A. B. Munro as assistant. Mr. Anness has been in charge of the company's New England branch for the past fifteen years, prior to which, he was connected with the New York office. Mr. Munro, likewise, has been associated with Richardson & Boynton Co. for many years and is thoroughly familiar with the New York territory.

◆

Johns-Manville Corporation Establishes Subsidiary Company

The Johns-Manville Corp., New York City, recently established a selling company under the name of the Johns-Manville Sales Corp. This is the first of several small subsidiaries planned by this manufacturing concern. The new sales company is incorporated in Delaware and its stock is owned entirely by the parent company.

◆

Resigns As Head of Youngstown Sheet & Tube Co

James A. Campbell, president of the Youngstown Sheet and Tube Co., Youngstown, Ohio, recently presented his resignation, to become effective January 1, 1930. Mr. Campbell, however, will continue with the company as chairman of the board of directors, and will be in active charge of the company's affairs.

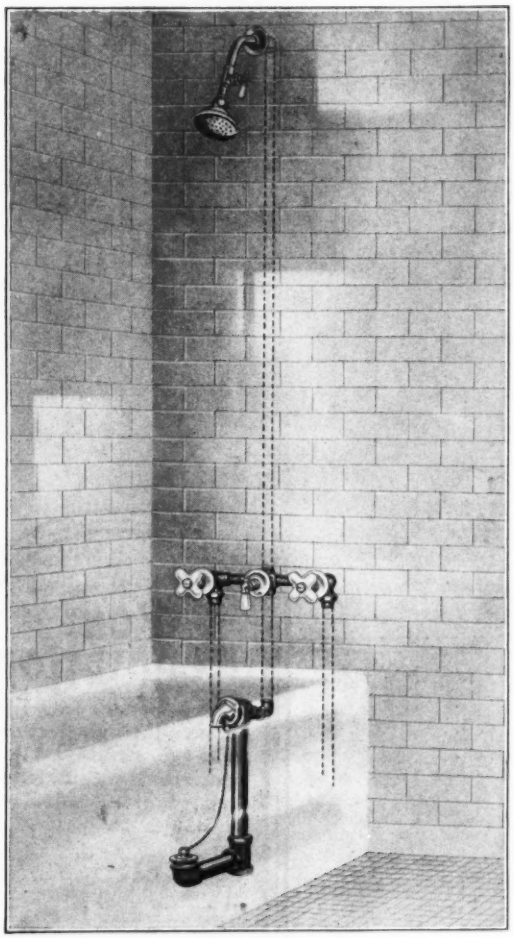
Frank Purnell, assistant president, and associated with the Youngstown Sheet and Tube Co. for twenty-seven years, was elected to the presidency, succeeding Mr. Campbell, by the board of directors. Mr. Purnell was assistant chief of the steel division on the war industry board during the war.

WOLFF

"DURO"
Combination Bath Supply, Drain and Shower Equipment *with* THRU-O-FLOW Integral Nozzle and Transfer Valve

This fitting is an embodiment of all that can be desired in a bath fixture. The ingenious arrangement of the triple valve assembly cuts installation time and the Transfer valve, by a simple turn of the lever diverts the tempered water to either tub or shower without the danger and discomfort of scalding.

The "THRU-O-FLOW" Drain combines the regular drain and overflow with an integral nozzle in the tub.

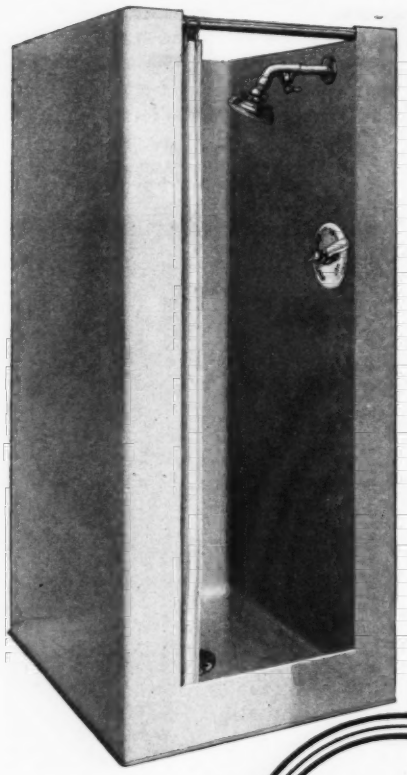


WOLFF J-30,111

WOLFF "DURO" Plumbers Brass constitutes a complete line of fixtures for every requirement of the Trade. Perfect workmanship, material and design. Supplied in the regular Nickel plate or the new "DUROCROME" finish.

WOLFF CO.
"Superior Plumbing Fixtures"
CHICAGO
Branches and Distributors in all Principal Cities

SUPERIOR PLUMBING FIXTURES



As pictured: the face of the NIEDECKEN SHOWER HEAD is easily removed for cleaning, by merely loosening three screws with ordinary wire nail. The patented lug and notch is the guide to replace the shower head face into proper place and alignment; and it is made as secure as when originally assembled.

Your Reputation

Every order you fill, every job you complete, should be guarded against all complaint, criticism and loss to you.

NIEDECKEN SHOWERS

—shower stall, shower head and mixer—are entirely free from all and any defect. The advanced, patented, new, exclusive NIEDECKEN features give PERFECT shower bath convenience, satisfaction and service. And you profit most when your customers are perfectly pleased. So acquaint yourself fully with all of the NIEDECKEN shower advantages, for the bigger, better business they will mean to you.

HOFFMANN & BILLINGS MFG. COMPANY

Milwaukee, Wisconsin

Write—now—for fully descriptive Bulletin.

New York Chapter, A. S. H. V. E., Holds December Meeting

The New York Chapter of the American Society of Heating and Ventilating Engineers, at its monthly meeting on December 16 at the Building Trades club, New York City, heard addresses by Thornton Lewis, Philadelphia, Pa., president of the society, and Werner Nygren, consulting engineer of New York City.

President Lewis, when presented by E. J. Ritchie, president of the chapter, gave an inspiring talk on the benefits that accrued to all members of the American Society of Heating and Ventilating Engineers. In his remarks he asked the question, "How much of the information that you use each day have you created?" He emphasized the point that a great deal of the information used by all of the members was gathered in talks with fellow engineers, and many of these talks are brought about by attendance at local chapter meetings and the meetings of the national society. President Lewis also called attention to the importance of getting new members and the splendid work that was being done by the different chapters in this direction. Speaking of the great respect in which the data compiled by the research laboratory of the national society is held by the engineering societies of Europe, he said that he did not appreciate what a good job had been done until encountering it abroad this last summer.

Mr. Nygren, who was associated with Alfred Wolff, when probably the first air conditioning job in the country was done at the New York Stock Exchange, told many interesting things about this installation, and then compared it with one of the most modern installations at the R. H. Macy & Co. department store in New York City.

It was indicated during the meeting that the New York chapter, according to figures read, stands fourth in the matter of securing new members. H. B. Hedges was named as delegate to the national meeting and Russell Donnelly, alternate.

There were 124 in attendance, among whom were six new members: Martin Rooney, general sales manager of Pierce, Butler & Pierce Mfg. Corp., New York City; M. E. Durkee, R. B. Purdee, J. E. Rice, Eugene Scribner and Lucien Beck.

◆

New Jersey Plumbing and Heating Salesmen Hold Special Meeting

The New Jersey Chapter No. 1 of the National Association of Plumbing and Heating Salesmen held a special meeting December 20 in the association offices at 833 Broad street, Newark, N. J., presided over by President E. M. Robinson. The main object of the meeting was to decide whether or not to continue maintaining office headquarters.

The final decision was to give up the office, beginning the first of 1930, and hold all future meetings at Toni's restaurant, 18 Green street, Newark. The members also voted to reduce the dues from $10.00 to $8.00 a year.

A dinner dance, given by the salesmen, with invitations extended to representatives of the entire industry, was announced for February 21, 1930. Arrangements are being made to have an orchestra furnish the music and songs.

Supply Company Is Host at Dinner

The Mamaroneck Plumbing Supplies, Inc., Mamaroneck, N. Y., was host to approximately eighty master plumbers, manufacturers and salesmen at a dinner on December 14 at the Vilone Farm restaurant. Following the dinner the guests were entertained by song and dance artists and twenty-five prizes were distributed for manufacturers by the company. M. A. Rivituso is president and J. Schuck is treasurer of the Mamaroneck company.

◆

Completes New Addition to Plant

The Elkay Mfg. Co., 4710 Arthington street, Chicago, Ill., has just completed a large, new addition to its plant, to which the general offices of the company have been moved. The new plant is seventeen times the size of the original factory, built in 1920. It is modern in every respect, allowing for comfort, cleanliness and a large amount of sunlight.

Boston Contractors and Gas Company Plan Closer Co-operation

Plans for closer co-operation between the heating contractors installing gas-fired boilers and the Boston Consolidated Gas Co. are under way, following a conference between F. D. Cadwallader, vice president in charge of sales for the company, and W. H. Oleson, manager of the Heating and Piping Contractors Boston Association, Inc. A committee headed by Herbert A. Snow of Buerkel & Co., Inc., and consisting of Joseph F. Dwyer of the J. P. Dwyer Co., Richard Keefe of the E. T. Keefe Co., and Mr. Oleson, has been appointed by President Thomas O'Callaghan to confer with gas company officials. This committee plans to hold a preliminary meeting in the near future, at which time contractors, not members of the association doing a considerable volume of gas heating and others interested in the matter, will be present.

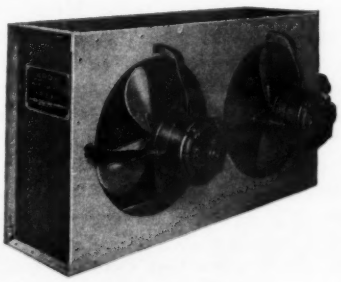
Plant of Elkay Mfg. Co.

KROY
Unit Heater

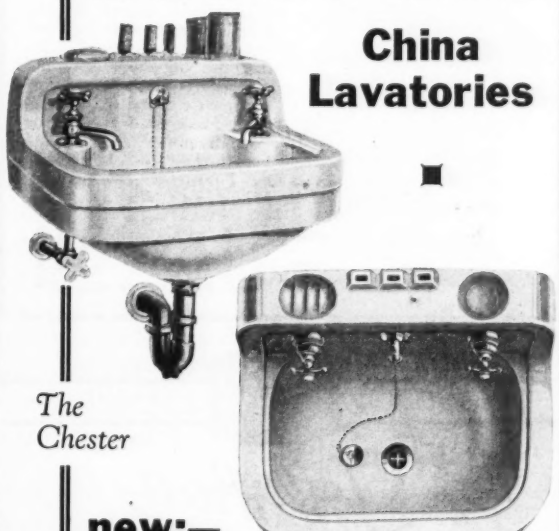
INCREASED Unit heater capacity at surprisingly low B. T. U. cost is supplied by Kroy Unit Heater No. 221, as illustrated. The Super-Fin coil is tested to 1000 lbs. hydrostatic pressure and is recommended for steam at any pressure up to 200 lbs. The multiple fans operate singly or in combination, thus giving maximum flexibility of control.

Ratings, specifications and data on request. Local offices in important cities.

York Heating & Ventilating Corp'n
Largest Producers of Unit Heaters
1573 Sansom St., Philadelphia



KEYSTONE
China Lavatories



The Chester

new:—

New in design—new in quality. The Chester is complete with accessory holders. Size 15x19 inches. Only extends 15 inches from wall due to FRONT OVERFLOW yet basin is 10x15½ inches. Feature the Chester now for new and replacement installations.

CAN BE FURNISHED LESS TOOTH BRUSH HOLES

KEYSTONE POTTERY CO. TRENTON, NEW JERSEY

Pat. Appld. for

SPENCER
steam, vapor or hot water
HEATERS

With the Magazine Feed and sloping Gable-Grate.

They save money for owners and make money for you.

Spencer Heater Company
Williamsport, Pa.

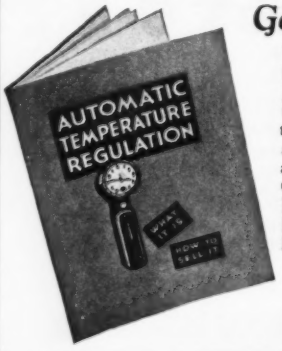
New York Boston Philadelphia
Buffalo Rochester Syracuse Albany
Baltimore Hartford Scranton

MYERS "Honor-Bilt" POWER PUMPS

Water is just as essential in a manufacturing plant, a mill, mine or factory as it is in the home or on the farm, but larger consumption for manufacturing processes and sanitary uses necessitates employing power pumps of greater capacity

MYERS POWER PUMPS have long been known for their simplicity of construction, installation and operation, and uniformity of service, and now that the self-oiling, enclosed working parts and other late features have been added, they head the list for safety, economy, and dependability. As a quantity user of water, Pumps like the MYERS hold many sales possibilities for you of improving your water service as a dealer be it extensive or limited. Catalog on request.

THE F.E.MYERS & BRO.CO. Ashland, Ohio
—ASHLAND PUMP AND HAY TOOL WORKS—



Get this free book!

Write for it today! All the facts about how to sell the Jewell Temperature Regulator, the big-profit specialty that meets today's demand for automatic heating. Minneapolis-Honeywell Regulator Co., *Executive Offices:* 2801 Fourth Ave. So., Minneapolis. *Factories:* Minneapolis, Minn. and Wabash, Ind.

Jewell
TEMPERATURE REGULATOR

The FAMOUS Sylphon TRADE MARK BELLOWS

Original—Genuine

Sylphon Temperature Regulators, Pressure Regulators and Expansion Joints are in almost universal use, in thousands of buildings, in nearly all industrial plants, in great power plants, and in the homes of the people.

The Fulton Sylphon Company, Desk D Knoxville, Tenn., U. S. A.

Eastern Supply Association Honors Past President

The Eastern Supply Association, on December 10 at a meeting of the program committee at the Hotel Astor, New York City, presented James A. Messer, Washington, D. C., who is credited with having guided the organization through one of the most constructive years in its history, with a handsome platinum watch. The time piece bore the inscription, "Presented to James A. Messer, president, Eastern Supply Association 1928-1929, by the members as a mark of their high regard and affection for him."

◆

Opens New Branch on Long Island

Saltser and Weinsier, Inc., Brooklyn, N. Y., the corporation which represents the merged interests of Henry D. Gasner, Julius Cohen and Abraham Wahl, has opened a new branch on 164th street, between South street and Liberty avenue, Jamaica, Long Island. All buying is being done at the main office by Mr. Gasner in the plumbing and Joseph F. McTamney in the heating departments.

◆

N. P. S. A. Directors Hold Meeting

The board of directors of the National Pipe & Supplies Association held its mid-year meeting in November at Detroit, Mich., with an uncommonly good attendance. It was announced at this meeting by W. J. Spillane, chairman of the membership committee, that twenty-eight new members had been secured since the May convention in Pittsburgh, Pa.

A discussion arose during the board meeting, regarding the future policies of the association, and it was the opinion of the executive committee that the directors continue to contact with the membership by holding mid-year meetings in the form of miniature conventions.

◆

Trenton Potteries Co. Holds Sales Conference

The Trenton Potteries Co., Trenton, N. J., held its sales conference on December 9 to 12 at the home office. The entire sales force with the exception of the West Coast representatives participated in the three day discussion of sales problems.

◆

Appoints New Representative

The Shaw-Perkins Mfg. Co., Pittsburgh, Pa., manufacturers of high convection radiators, has just appointed the Kilner-Mills Co., 3-266 General Motors building, Detroit, Mich., as its representative in the state of Michigan.

◆

Minneapolis-Honeywell Co. Increases Dividend Rate

The board of directors of the Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., voted at its December meeting to increase the semi-annual dividend rate on the company's common stock from $1.25 a share to $1.50, and to continue the semi-annual extra dividend of .50c a share inaugurated in 1929. Dividends on this new basis were declared, both payable on February 15, 1930, to stockholders of record at the close of business February 4, 1930.

The company's 7 per cent convertible preferred stock was called for redemption on November 15, and has been

(Continued on Page 105)

Look at This Speed Heater Market!

—now let us explain how to reach it . . . at a profit!

Modern industrial plants, workrooms and other large floor areas . . . garages, gymnasiums, etc., are now being heated almost entirely with suspended air heaters. The selling possibilities are great for both old and new buildings.

Now comes the SPEED HEATER . . . and with it, an organization of Sales Cooperators ready to help you reach that big SPEED HEATER market . . . and make money in it!

The SPEED HEATER comes with the Sturtevant name on it . . . a guarantee and a proof of engineering excellence. And yet, in price, it hits a new low! Bidding on jobs becomes easy; selling the heater itself is no job at all . . . in capacity, in silent operation, in looks, it has no equal.

If you want to reach this profitable heater market, we can help you in many ways . . . Send for our booklet "Tips on Heater Selling" and complete information, including your prices, on SPEED HEATERS.

The coupon is handy and the time is ripe . . . now!

THE PRICE IS WAY DOWN

COUPON

B. F. STURTEVANT CO.
Hyde Park, Boston, Mass.

Kindly mail me SPEED HEATER particulars, also copy of "Tips on Heater Selling."

☐ I'd like to see a Sales Cooperator when he's in the district.

Name of Company.....

Street Address.....

City..... *State*.....

B. F. STURTEVANT COMPANY

Plants and Offices at: Berkeley, Cal. ◥ Camden, N. J. ◥ Framingham, Mass. Galt, Ontario ◥ Hyde Park, Mass. ◥ Sturtevant, Wis.

Branch Offices at: Atlanta; Birmingham; Boston; Buffalo; Camden; Charlotte; Chicago; Cincinnati; Cleveland; Dallas; Denver; Detroit; Hartford; Indianapolis; Kansas City; Los Angeles; Milwaukee; Minneapolis; Newark; New York; Omaha; Pittsburgh; Portland; Rochester; St. Louis; San Francisco; Seattle; Washington, D.C. ◥ *Canadian Offices at:* Toronto; Montreal and Galt. ◥ *Canadian Representative:* Kipp Kelly, Ltd., Winnipeg

Also Agents in Principal Foreign Countries

Sturtevant
(REG. U. S. PAT. OFF.)

SPEED HEATERS
"More Heat Less Steam"

RUGGED STRENGTH

Pictured is a General Motors Truck in the service of Scott Bros., Inc., of Philadelphia.

Keeps GENERAL MOTORS TRUCKS on the job *year in and year out!*

TOUGH, hard duty sharply reveals the inbuilt sturdiness of General Motors Trucks. You see these powerful, modern vehicles still on the job year after year, giving tens of thousands of miles of economical, efficient service long after less rugged vehicles have been scrapped.

Extra margins of strength in every detail of construction are put there deliberately: to enable this modern equipment *to do more work, day in and day out, and year in and year out*, at less actual cost, *than any other trucks on earth.*

Unusual engineering advantages contribute to this rugged strength: for example, General Motors Research Laboratories and General Motors great Proving Grounds.

This is *plus* equally great manufacturing advantages: the most modern commercial vehicle plant in the world—and the largest, too—bar none; the massed *buying power* of a great industrial organization, assuring highest quality in parts and material.

These things are solid realities, united and coordinated to produce vehicles whose long-lived performance is precisely what you would expect from trucks bearing this name.

* * *

It will pay you to investigate this great line. Write, phone or call.

GENERAL MOTORS TRUCKS

GENERAL MOTORS TRUCK COMPANY, Pontiac, Mich. (*Subsidiary of* Yellow Truck & Coach Mfg. Co.)
GENERAL MOTORS TRUCKS, YELLOW CABS and COACHES
Factory Branches, Distributors, Dealers—in 1500 principal cities and towns
(*Time payments financed through* Yellow Manufacturing Acceptance Corporation *plan, at lowest available rates*)

ALWAYS INVESTIGATE WHAT GENERAL MOTORS HAS BEFORE YOU BUY

(Continued from Page 102)

either converted or retired, leaving the company's capitalization consisting of only 179,925 shares of common stock.

Personal Mention

WALTER KOHLER, governor of Wisconsin and head of the Kohler Co., of Kohler, Wis., recently entered the Mayo clinic at Rochester, Minn., to undergo an operation. According to newspaper dispatches from Rochester, Governor Kohler is now recovering splendidly.

WILLIAM H. CADWELL, president of the Beaton & Cadwell Mfg. Co., New Britain, Conn., returned recently with two guests from a hunting trip at his camp in the Adirondack mountains.

CLARK KEELER, who has been connected with the main office of the C. A. Dunham Co., Chicago, Ill., became acting Massachusetts manager of that company on December 1, with headquarters at 136 Federal street, Boston. F. D. B. INGALLS, formerly Massachusetts manager, will continue with the company, but is at the present time taking an extended trip for his health.

R. W. BARCUS, previously with the National Radiator Co., Johnstown, Pa., has recently been appointed as manager of the Philadelphia branch of Richardson & Boynton Co., New York City, operating in the southeastern territory. Mr. Barcus was connected with the American Radiator Co., New York City, prior to 1921 and is well known to the plumbing and heating industry in all parts of the country. His office is at 1308 Arch street, Philadelphia.

R. W. Barcus

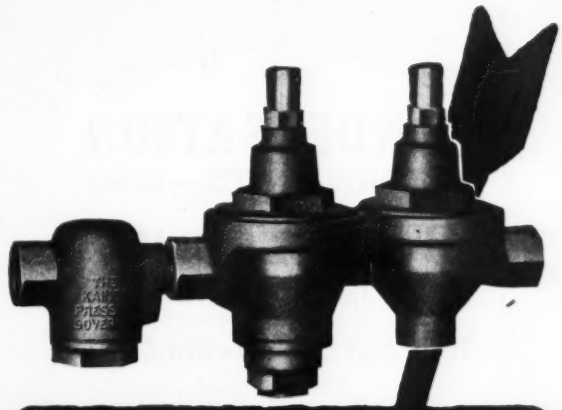
LEO J. BACHLE, manager of the Salt Lake City, Utah, branch of the N. O. Nelson Mfg. Company, has been chosen second vice president of the Kiwanis club in Salt Lake City.

CHARLES A. SPENCER has recently become identified with Smith & Wesson, Springfield, Mass., and will devote himself to sales promotion work in the flush valve division of the company.

JOSEPH STAHL, bulk manager of B. T. Babbitt, New York City, returned recently from a business trip to the Pacific Coast.

W. E. LOWELL, formerly Western manager for the Bentz Engineering Corp., Newark, N. J., has recently become associated with the York Ice Machinery Corp., York, Pa., in the air conditioning department. Mr. Lowell has had a wide experience in industrial air conditioning, cooling and drying problems. He will be located in Chicago and will render service to all of the Western branches of the York Ice Machinery Corp.

MARTIN ROONEY has been made sales manager of Pierce, Butler & Pierce Mfg. Corp., New York City. Mr. Rooney has as an assistant E. T. MCCORMACK, who



The **KAINER**
PRESSURE GOVERNOR
for Hot Water Heating Systems

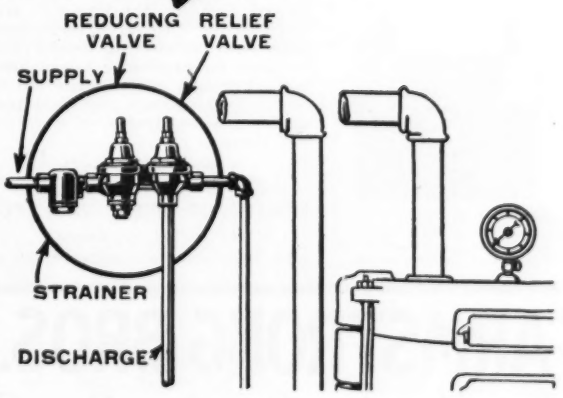
More and more plumbing and heating contractors and engineers are recommending and installing the KAINER Pressure Governor in place of expansion tanks and fittings on their hot water layouts.

The overwhelming nationwide acceptance of the KAINER during the past few years affords ample proof of the sound engineering principles that characterize the design and construction of this dependable Governor.

The KAINER Governor reduces the cost of a hot water lay out, simplifies installations, makes a better job, saves your time and your customer's money, increases your profits and builds good will.

Write today for full information

KAINER & COMPANY
CHICAGO
761-771 MATHER STREET
Manufacturers



CONDENSATION RETURN UNITS—*using*

BURKS Super-Turbine PUMPS

A New Application of Two New Burks Pumps—

Will Not Steam-Bind ! ! !

Style 100

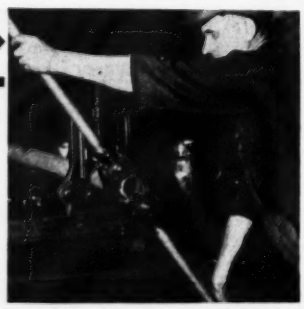
Write today for Bulletin No. 89 showing Prices, Capacities and Exceptional Performance of these Condensation Units.

Your profit is generous.

DECATUR PUMP CO.

Decatur :: Illinois

Originators and Exclusive Manufacturers of Burks Turbine-Type Pumps That Pump Air!



These Vanadium Steel Dies Make Pipe Threading Easier.

ARMSTRONG BROS. Adjustable Pipe Dies make pipe threading easier for they have many improved features. Made of Vanadium Tool Steel, carefully hardened, drawn, tempered and tested — they stay sharp much longer than ordinary dies. They are of improved design. Cutters are "backed-off" to give clearance from point of cutting teeth; this involves an expensive operation, but is the only cutter form which makes cutting easy and gives the uniform smoothness of a lathe cut thread.

ARMSTRONG BROS. Adjustable Pipe Dies. Ample chip clearance. Corrected throat and cutting angles.

Write today for Catalog P-10.

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

323 N. Francisco Ave., CHICAGO, U.S.A.

ARMSTRONG BROS.

CHICAGO

was formerly district sales manager in the Metropolitan area. MAX D. ROSE, whom Mr. Rooney succeeds, has become connected with the American Radiator Co., New York City.

G. L. WIGGS, Montreal, Que., has been appointed manager of the Montreal branch of the C. A. Dunham Co., Ltd. Mr. Wiggs has been associated with the heating trade for the past ten years and has an intimate knowledge of the business.

◆

Raub Supply Co. Holds Sales Convention

The Raub Supply Co., Lancaster, Pa., recently held its annual four-day sales convention, attended by the Lancaster, Wilkes-Barre, Harrisburg and Philadelphia sales forces. The convention was featured by a dinner at the Southern hotel, in Baltimore, Md., at which time addresses were given by Stuart H. and William S. Raub, president and vice president, respectively, and Frank H. Miley, of the Raub company.

One day of the convention was devoted to an inspection tour of Baltimore industrial plants, including the Bethlehem Steel Co. plant at Sparrow's Point; the Baltimore Copper Co. and the Standard Sanitary Mfg. Co.

Top row: George H. Urwiler, Tomlinson Co.; H. M. Boucher, Pittsburgh Valve & Fittings Co. Middle row: E. Quindlan; L. T. Fest, mnnager of Pierce, Butler & Pierce, Philadelphia, Pa.; C. Stines, Brunswick, Balke, Collender Co.; E. J. Mummert, Pierce, Butler & Pierce; W. E. Clausen, manufacturing agent, Philadelphia, Pa. Bottom row: W. J. Keller, George Kitson Co.; R. D. Yankey, R. C. Wilson Co.; E. S. Thompson, EverHot Heater Co.; J. W. Lawson; F. A. Dubbs, Thomas W. Price Co. Photos taken at outing of Plumbsteam Club at Philadelphia, Pa.

4 GENERATIONS of MASTERS

—have found SPANG quality equal to their Craftsmanship

PLUMBING pipe must be exceptionally high grade to command the confidence of master plumbers and contractors for the better part of a century—yet that is the unequalled record of "Spang" Welded Steel Pipe—made by America's oldest pipe manufacturers.

The easy cutting and easy threading qualities of "Spang" Pipe, combined with its dependability in service, has made it a reigning favorite among plumbers and contractors the world over.

Learn why this famous pipe has been so popular for so many years by specifying "Spang" in your next pipe requisition.

SPANG, CHALFANT & CO., INC.

General Offices: **Clark Building, Pittsburgh, Pa.**

Sales Offices: Chicago, Ill. New York, N. Y. St. Louis, Mo. Pittsburgh, Penna. Tulsa, Okla. Los Angeles, Calif.

Mills: Etna, Penna. Sharpsburg, Penna. Ambridge, Penna.

SPANG

WELDED STEEL PIPE

Refrigerating Engineers Meet in New York City

The American Society of Refrigerating Engineers held its annual meeting, which marked the twenty-fifth anniversary of the organization, in New York City, December 4 to 7. The meeting was very well attended and perhaps more replete with interest and new ideas than any in recent years. In a long list of technical papers and from a number of prominent men as speakers, the trends of the past, the most recent notions, and the industrial, as well as engineering problems, were discussed —applying to every field that is served by refrigeration.

H. D. Edwards of New York City, consulting engineer, was elected president of the association for the ensuing year, and Glenn Muffly of Detroit, Mich., was made second vice president. The following new members were appointed to the board of directors: C. F. Belshaw of Detroit, Mich.; J. B. Churchill of New York, N. Y.; A. R. Stevenson, Jr., of Schenectady, N. Y.; L. L. Lewis of Newark, N. J.

The convention opened with a luncheon for the members on the first day, with Colonel R. I. Rees of the American Telephone and Telegraph Co. the principal speaker. Papers were heard on the afternoon of the first day by Clarence Birdseye and Dr. Donald H. Andrews of Johns Hopkins University. The opening address was by S. C. Bloom, consulting engineer of Chicago, Ill.

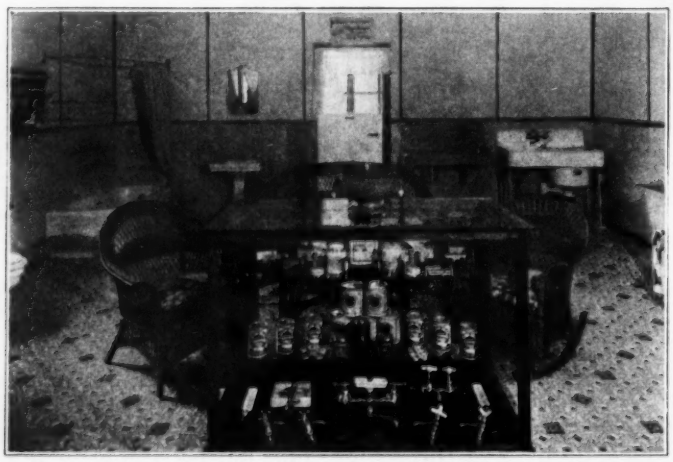
The business session of the convention was entirely devoted to an open discussion on the general subject of research. H. Harrison, chairman of the research committee, presented the carefully developed policies of his committee. The second technical session was held during this evening, when three papers were heard covering problems dealing with domestic refrigeration. Franklin E. Vilas, superintendent of the refrigeration department of the Consolidated Gas Co., New York, C. F. Belshaw and Dr. L. A. Philipp, presented papers.

Thursday saw two technical sessions, the one in the morning being on ice making with George B. Bright in the chair. The second session this day was devoted to the subject of refrigeration design problems.

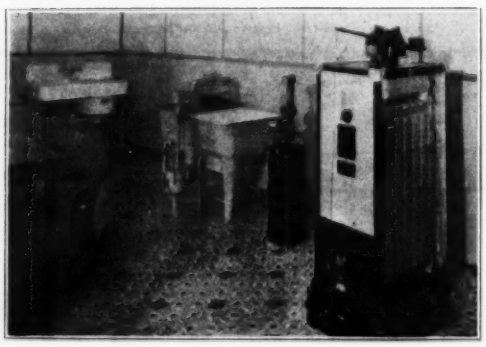
On Friday the morning session was held at the hotel, while in the afaternoon the session was held at the Engineering Societies building, jointly with the A. S. M. E. Corrosion and test codes were discussed on this day.

One of the most interesting sessions, considered from all angles, was the seventh and last, conducted on Saturday morning under the chairmanship of H. Harrison.

Model Plumbing Store of Hajoca Corp.



The photograph above and the one below show two views of the model plumbing store designed by the Hajoca Corp. of Philadelphia, Pa., and on display in the firm's display room in Baltimore, Md.



Mr. Harrison was the instigator of a new plan of student prize papers, and this session was given to the reading of four papers and the award of the first set of prizes.

◆

Atlanta Salesmen Hold Meeting

The Atlanta Chapter of the Plumbing and Heating Salesmen's Association held its regular monthly meeting at the Chamber of Commerce, Atlanta, Ga., on Saturday, December 7. The meeting was directed by R. J. Welsh of the Sloan Valve Co., Chicago, Ill., who is president of the Atlanta association. A nominating committee was selected to prepare a slate for the election of officers for the ensuing year. The date for the election will be set later, according to President Welsh. Present officers of the association, besides President Welsh, are Perry Guest, vice president; Guy Guest, secretary, and Frank Moriarity, treasurer.

◆

Plumbsteam Club Holds Meeting

The Plumbsteam Club of Philadelphia, Pa., held a dinner and business meeting on December 13, at the Hotel Sylvania. President William Morgan presided. The business session was devoted to routine organization matters, and means of promoting better attendance at meetings was discussed. At the next meeting of the club, which will be known as "Architects' Night," Claude Owens of Washington, D. C., will be one of the principal speakers.

◆

Wholesalers' and Manufacturers' Representatives Meet

A meeting of manufacturers' representatives and wholesalers of Jackson, Mich., was held recently at the Hayes hotel, Jackson. More than forty representatives of the plumbing and heating industry were present. J. A. Galloup of the Galloup Pipe & Supply Co., Battle Creek, Mich., presided at the meeting and introduced as the first speaker of the evening, William A. Johnson, who is secretary of the Michigan Association of Plumbing and Heating Dealers.

Frank Stuart, field secretary for the association, followed Mr. Johnson, and spoke on the coming state convention, which is to be held at Jackson, and commented on association activities. The principal address of the evening was given by Chester Elliott, secretary of the Michigan Credit Bureau, who discussed the subject of credit.

◆

Honor J. I. Lyle with Dinner

The New York Alumni club of the University of Kentucky honored J. I. Lyle, vice president of the Carrier Engineering Corp., Newark, N. J., class of 1896, at a dinner on December 5 at the Harvard club, New York City. The dinner was tendered Mr. Lyle, who was the first to bring about the appointment of graduate members to the board of the university, in recognition of his activity in supporting not only the college of engineering, but the entire university, both in a financial way and through active service rendered.

F. Paul Anderson, dean of the college of engineer-

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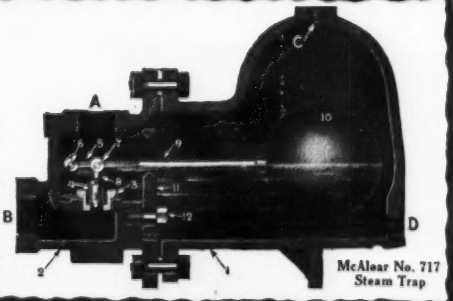

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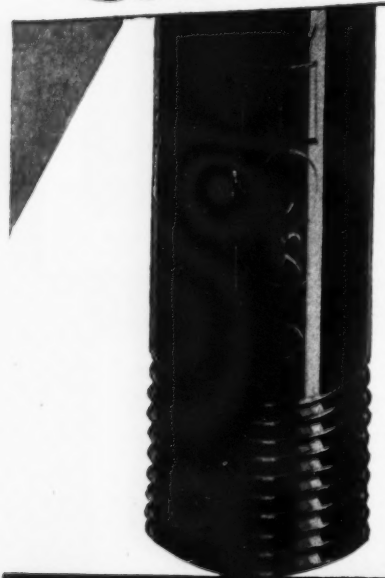

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ing of the university, addressing the gathering, indicated the appreciation, he and the entire institution feels toward Mr. Lyle, for the efforts he has put forth. Howard Ingles, as toastmaster, called on a number of the engineers present for remarks. Among these, Esten Bolling and E. T. Murphy, both of the Carrier Engineering Corporation, each made short addresses.

In an address of acknowledgment, Mr. Lyle drew attention to the splendid opportunity the university offers a man to indicate his appreciation of what it has been to him.

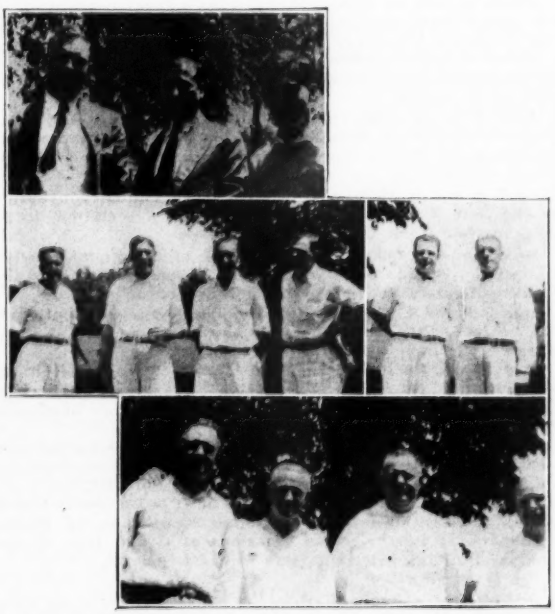
Henry Kelly Brent, who is a graduate of both Harvard and the University of Kentucky was the host member, and was complimented by the 120 alumni present, most of whom were engineers, for the commendable manner in which the affair was handled.

◆

Death of William Calverley

William Calverley, superintendent of the Ruud Mfg. Co., Philadelphia, died November 9 at his home in Swissvale, Pa. Mr. Calverley was born in Allegheny in 1862, and had resided in the Pittsburgh district all his life.

He was a member of McKinley Lodge, No. 318, F. & A. M., and of the Masonic Veterans Association. He was a director of the Hamilton Realty Co. Surviving him are his wife, a son, a daughter, a sister and a brother.



Top row: George Hamill, New York manager, A. M. Byers Co.; C. B. Wynne, Newark, manager, Standard Sanitary Mfg. Co.; H. Berla, Newark. Middle row: J. J. Palitta; R. R. Owens, New York manager, Newport Boiler Co.; Ray Moody, Sloan Valve Co., Newark; Earl Filgon, New York manager, Hart & Hutchinson; J. Miners, Newark; Stanley Miller, Irvington. Bottom row: J. C. Keane, Plumbing and Heating Industries Bureau, New York; C. B. Moore, executive secretary, New Jersey Association of Master Plumbers; H. E. Baumgartner, vice president, New Jersey Plumbing and Heating Trade Golf Association; S. F. Wilson, Newark, past president, National Association of Master Plumbers. Photos taken at New Jersey Plumbing and Heating Trade Golf Association outing

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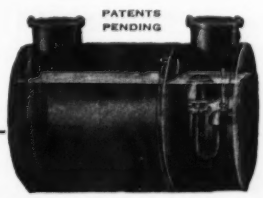

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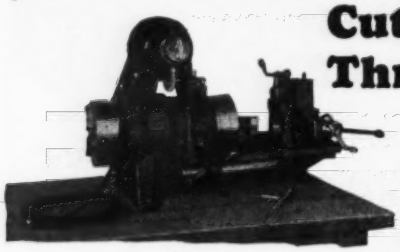

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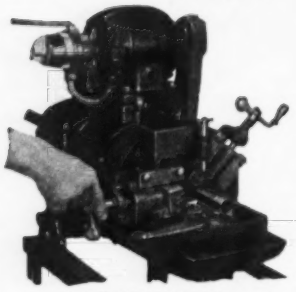

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Convention Dates

January 13, 14 and 15, 1930—PRESIDENTS' AND SECRETARIES' CONFERENCE—The eighth annual conference of the presidents and secretaries of associations in the plumbing and heating industry, to be held at the Congress hotel, Chicago, Ill.

January 14, 15 and 16, 1930—WISCONSIN—The annual convention of the Wisconsin Master Plumbers' Association, to be held in Milwaukee, with headquarters at the Hotel Schroeder.

January 15 and 16, 1930.—SOUTH DAKOTA—The annual convention of the South Dakota Retail Plumbers' Association, to be held at Rapid City, South Dakota. Convention headquarters at Alex Johnson hotel.

January 21, 22 and 23, 1930.—ILLINOIS—The annual convention of the Illinois Master Plumbers' Association, to be held at Rockford with headquarters at the Hotel Faust.

January 27-30, 1930.—A. S. H. V. E.—The thirty-sixth annual meeting of the American Society of Heating and Ventilating Engineers to be held at Philadelphia, Pa.

January 28 and 29, 1930—IOWA—The annual convention of the Iowa Master Plumbers' Association, to be held at Sioux City.

February 3 and 4, 1930.—WEST VIRGINIA—The annual convention of the West Virginia State Association of Master Plumbers to be held at Clarksburg.

February 4 and 5, 1930—MINNESOTA—The annual convention of the Minnesota Retail Plumbers' Association, to be held in St. Paul.

February 4, 5 and 6, 1930.—OHIO—The annual convention of the Ohio State Association of Master Plumbers to be held at Springfield, with headquarters at the Hotel Shawnee.

March 10 and 11, 1930—KANSAS—The annual convention of the Kansas Master Plumbers' Association, to be held at Salina.

March 10, 11 and 12, 1930.—INDIANA—The thirty-fourth annual convention of the Indiana Society of Sanitary Engineers, to be held at Fort Wayne.

March 11 and 12, 1930—MAINE—The annual convention of the Maine State Master Plumbers' Association, to be held at the Falmouth hotel, Portland.

March 17 and 18, 1930—MISSOURI—The annual convention of the Missouri State Association of Master Plumbers, to be held in St. Louis.

April 7 to 12, 1930.—AMERICAN OIL BURNER ASSOCIATION—The seventh annual convention and exposition of the American Oil Burner Association, to be held at the Stevens Hotel, Chicago, Ill.

April 8 and 9, 1930—NEW YORK—The annual convention of the New York State Master Plumbers' Association, to be held in New York City.

May 5 and 6, 1930.—FLORIDA—The ninth annual convention of the Florida State Association of Master Plumbers and Heating Dealers, Inc., to be held at Bradenton.

May 5, 6 and 7, 1930—N. P. S. A.—The annual convention of the National Pipe & Supplies Association, to be held at Pinehurst, N. C., in the Carolina hotel.

May 12, 13, 14, 15 and 16, 1930—CALIFORNIA—The annual convention of the State Association of Master Plumbers of California, to be held at Sacramento. Convention headquarters will be at the Hotel Senator.

May 19, 20 and 21, 1930—PENNSYLVANIA—The annual convention of the Pennsylvania Master Plumbers' Association, to be held at the Bellevue-Stratford hotel, Philadelphia.

June 24, 25 and 26, 1930.—N. A. M. P.—The forty-eighth annual convention of the National Association of Master Plumbers, at Boston, Mass. Sessions at Grand Hall of Mechanics Building. Headquarters at Statler Hotel.

COMING TRADE EVENTS

January 11, 1930—The annual dinner and installation of officers of the North Hudson, N. J., Master Plumbers' Association, to be held at the Elks' club, Union City, N. J.

January 13, 1930—The annual Milwaukee Apprenticeship Conference to be held at the Hotel Pfister, Milwaukee, Wis.

January 18, 1930—The annual dinner dance of the New York University Heating and Ventilating Engineers Society, to be held at the Hotel Martinique, New York City.

January 27, 28, 29, 30 and 31, 1930.—The International Heating and Ventilating Exposition, to be held at the Commercial Museum, Philadelphia, Pa.

June 23-27, 1930.—Exposition in connection with the annual convention of the National Association of Master Plumbers, in the Mechanics Building, Boston, Mass.

Part-Time Plumbing Schools and Classes

(Continued from Page 90)

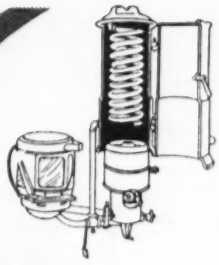
of the most valuable types of work which is ordinarily carried on in city trade schools is of this type. This special form of part-time organization lends itself exceedingly well to apprentice-training programs, and more especially for advanced apprentices. Very often attendance upon such schools or classes is required under co-operative agreements between labor organizations and employers and the schools or apprentice commissions and the school. It is believed by many persons who have studied problems of apprenticeship, that this type of work represents one of the most valuable types of service which a trade school can render in connection with a comprehensive apprenticeship program.

"2.—*A special group of apprentices under instruction in related technical subjects* four or eight hours per week during the working day.—This special type of organization is similar in most respects to that described in the preceding paragraph. This type of school, however, is only technically connected with a trade-school organization. Classes may meet at any convenient point, as, for example, in a private establishment where an instructor whose salary is paid from public funds meets his groups of apprentices at stated intervals. This type of school has been successfully operated in groups of cities, with the instructor spending one day in each of several cities. In this way it is possible for a special instructor of plumbers' apprentices, for example, to carry on organized instruction with groups of apprentices in as many as five cities in a State, while another instructor carries on a similar program with groups of apprentices from the painting and interior-decorating trade, and a third instructor serves the iron molders' trade in a similar manner.

"One particular advantage of this type of organization is that no large central trade school is necessary, and the program can be worked out where none of the cities served would be able to support a comprehensive unit trade school offering instruction in a wide variety of trades.

"3.—Co-operative Courses—The co-operative course where the working time is equally divided as between school and work, is essentially a substitute for the unit trade school, and for that reason its legitimate training objectives are at least 90 per cent trade preparatory. The fact that the pupils are employed out in industry 50 per cent of their time, provides an opportunity for them to learn at first hand much important information concerning the trade or occupation. Through this experience they are able to form a definite opinion as to whether or not they are interested in entering upon the work of that particular trade from the standpoint of a permanent proposition.

"Another desirable characteristic of the co-operative course is that it tends to limit the number of persons trained for a given trade to the number of opportunities for employment which actually exist. When a trade tends to become crowded, opportunities for placement of co-operative students on completion of their period of co-operative training disappear, and such a result



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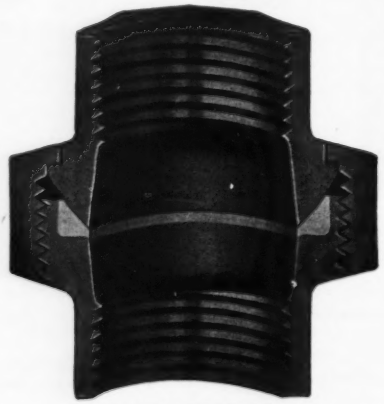

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means that the abandonment of the co-operative course will shortly follow. In other words, the co-operative course embodies a semi-automatic system of placement. An efficient system of placement is one of the outstanding characteristics of any efficient trade and industrial school of the vocational type."

Requirements of Course

The government bulletin points out that the part-time school is for employed boys between the ages of 14 and 18 years.

Because of the age limitation, the instruction given should not be over the heads of boys of this age. There is almost always a tendency to overreach in this respect. Another tendency which should be guarded against is that of getting away from the strict needs of the part-time school into the field that the high school covers.

These and other tendencies crop out in trade school work, and unless checked will work against the efficient operation of such a school.

In part-time trade classes, 144 hours per year is considered a minimum requirement. This is generally based on 4 hours per week of 36 weeks for the average school year. Concerning this subject, the following from the bulletin is to the point:

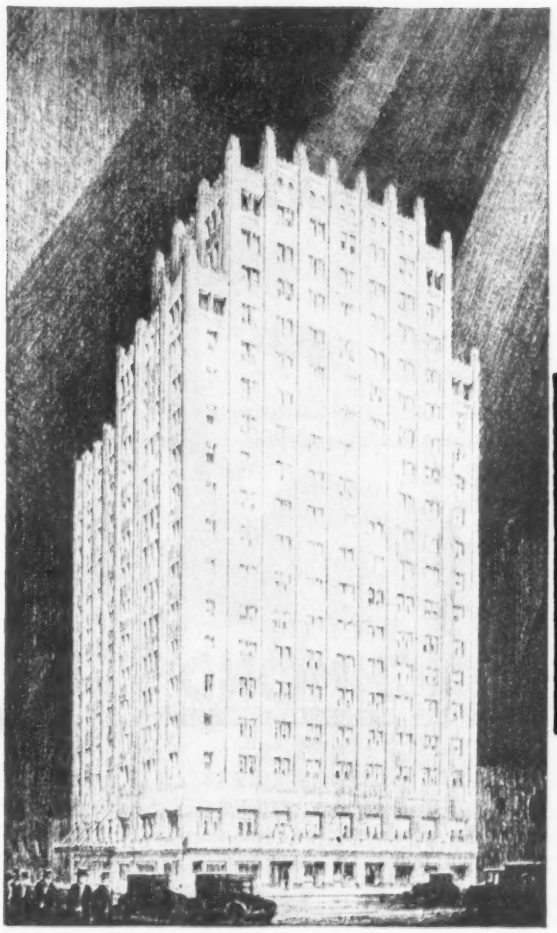
> "The time requirement is not met when an instructor works a total of 144 hours per year with individuals scattered throughout a factory or industrial plant. It is met when a group is brought together for definitely organized instruction for not less than 144 hours."

Practically all part-time classes operate between the hours of 8 a. m. and 5 p. m. In this connection, as the bulletin states, "the essential point with respect to this is that time must be taken out of the usual working day." In government vocational work evening work is never considered as part-time work.

Under the heading "Safeguarding of Craftmanship," the bulletin has the following:

"A program of apprentice training which is co-ordinated with a part-time school of the trade extension type, tends to insure the development of first-class mechanics. In view of the fact that the part-time school limits its enrollment to apprentices who are actually employed in the trade, one of the most difficult and annoying problems of the unit trade school is eliminated. This problem has to do with the selection of candidates for training. When an apprentice has been employed, he then becomes a candidate for the part-time extension program, and through co-ordination on the job and definite, progressive technical instruction in the school, the apprentice has a first-class opportunity to develop into a real mechanic who will be a credit to himself and to his craft. The part-time trade extension school tends to prevent the flooding of the trades with half-trained or semi-skilled workers who think they are mechanics, and from every standpoint tends toward the development of higher types of workers."

Another point that is well taken, is that in trade-extension work, it is almost always wrong to handle the same subject in the same way to boys who are studying different trades. For instance, good results could not be obtained by teaching a combined class of plumbers' and plasterers' apprentices exactly the same kind of



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NEW YORK—30 Church St.
PHILADELPHIA—Franklin Trust Bldg.
PITTSBURGH—Oliver Bldg.
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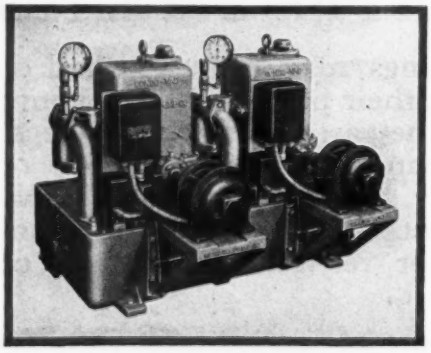

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Offices in all Principal Cities

drawing or mathematics.—The bulletin gives a sort of summation concerning part-time trade extension classes, in the following paragraphs:

"The maximum efficiency of a part-time trade extension school or class will be attained when each group is made up of bona fide apprentices or recognized learners, without any dilution whatever from other sources.

"For maximum efficiency the hours per day and weeks per year should coincide with the industrial calendar. It is exceedingly difficult to realize the very highest degree of efficiency in the operation of apprentice programs when the school program closes down for a period of 12 to 16 weeks during the summer.

"The degree to which the efficiency of a school or class of this type depends upon the ability, skill, and standing of the instructor has already been discussed in the preceding paragraphs. For maximum efficiency the man who ranks highest in the community with regard to all of the characteristics listed, should be employed as the apprentice instructor.

"The importance of co-operation between employers, labor, and the public schools in connection with the development and operation of this type of organization has already been thoroughly discussed. The maximum efficiency may be expected where complete co-operation exists as between the three groups, and such co-operation can be effectively worked out through representative advisory committees for each trade, upon which employers, labor, and the public schools are equally represented.

"Any program of the part-time trade-extension type which has a notable degree of success must be co-ordinated with local industry. The highest degree of efficiency may be expected when there is perfect co-ordination. The term 'co-ordination' in this case is intended to include not only the synchronization of school work and job experience for each apprentice, but also includes the up-to-dateness of the instructor. No school program of this type can be perfectly co-ordinated with industry unless the instructor is alive to every important development in his trade which occurs in the community, and unless he keeps up to date with respect to the latest changes and improvements regarding methods, materials, processes, equipment, machinery, and other matters affecting his all-round working command of his trade."

An Unusual Plumbing Job

(Continued from Page 74)

Water Supplied at All Times

The water and gas connections were made by using strong sections of hose. A line of W. I. pipe was laid down with tees and valves at distances of 20 feet. A twin connection as shown on sketch No. 2 was made at the main feed to the building. A section of hose was connected to one of the tees and one of the openings in the twin connection. As the building moved and the length of the hose was used up another tee was connected up with another piece of hose and the switch made by simply opening and closing valves. The gas was handled in the same manner.

The job on the whole was exceedingly successful, the work being done by Weldon & Kelly Co., one of the leading plumbing contracting firms of Pittsburgh.

Modern Drainage and Vent Fittings

(Continued from Page 68)

casting is so made that waste from one bowl cannot flow across into the opening of the other, and still the vent opens into both connections.

Few fittings are designed to do any more work than can be done by the fitting in Fig. 21.

Similar to the double fitting of Fig. 18 is that of Fig. 22. The latter is a screwed fitting, and has an additional side inlet.

Fig. 23 shows the double fitting of the same type.

Fig. 24 gives a good idea of the use of this fitting in serving two bath rooms back to back. The two bath tubs are served by a 2-inch x 1½-inch x 2-inch double drainage fitting, which has a common vent for the two bath tubs. In the event that there is no use for the other side inlet, it may be plugged. It will be clear, however, that if the bath tubs were located on one side of the stack, and the lavatories on the other side, one side inlet would be available for each pair of fixtures.

In Fig. 25 is shown an arrangement for a single bath room, with adjustable closet bend. The additional side inlet is available for additional service, for instance, a kitchen sink or combination fixture. This grouping of all the fixtures of an apartment is very common, and if the floor plan does not have to sacrifice too much to obtain this grouping, it reduces plumbing cost considerably.

The work in Fig. 25 could easily be expanded to do the double work of serving two bath rooms by the use of three double drainage fittings in place of the three single ones here shown.

In the two articles we have now devoted to the subject of modern drainage and vent fittings, we have considered only those drainage fittings that are designed for use on soil and waste stacks. As many of our readers will fully appreciate, in these two articles we have given consideration to the principal types and combinations, but as far as giving more than a general idea of the subject, we make no claim.

In addition to stack fittings, there are a great many cleverly designed fittings for use on horizontal soil and waste lines, and these we will consider in a third article.

◆

How Fast Does the Wind Blow?

A light wind, up to seven miles an hour, is felt lightly on the face, and rustles leaves.

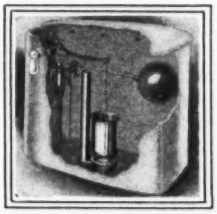
Moderate winds, thirteen to eighteen miles an hour, raise dust and sway small branches.

Fresh winds, nineteen to twenty-four miles an hour, sway small trees in leaf and cause crested wavelets to form on inland waters.

Strong winds, twenty-five to thirty-eight miles an hour, whistle through telephone or telegraph wires. One walking against them feels himself held back.

A gale, thirty-nine to fifty-four miles an hour, breaks twigs off trees and often inflicts slight structural damage to buildings.

A whole gale, fifty-five to seventy-five miles an hour, uproots trees. Any wind with a velocity of more than seventy-five miles an hour is classed as a hurricane.—The Hartford Agent.

CURTIN
TANK NOISELESS FITTINGS

A·F·CURTIN VALVE CO.
Medford, Mass.

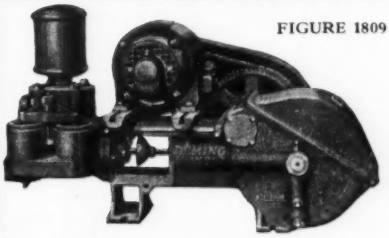


FIGURE 1809
Write for Water System Catalog K.
THE DEMING CO., *Salem, Ohio - Est. 1880*
Deming

Opportunity
Trupar Refrigeration is the answer to the trade's need for a real live line to merchandise.
TRUPAR
ELECTRIC REFRIGERATION
The line is complete—range of styles, sizes, colors, and is available at prices that mean sales and profits.
Catalog Upon Request.
Trupar Mfg. Company
140 Davis Ave. • Dayton, Ohio

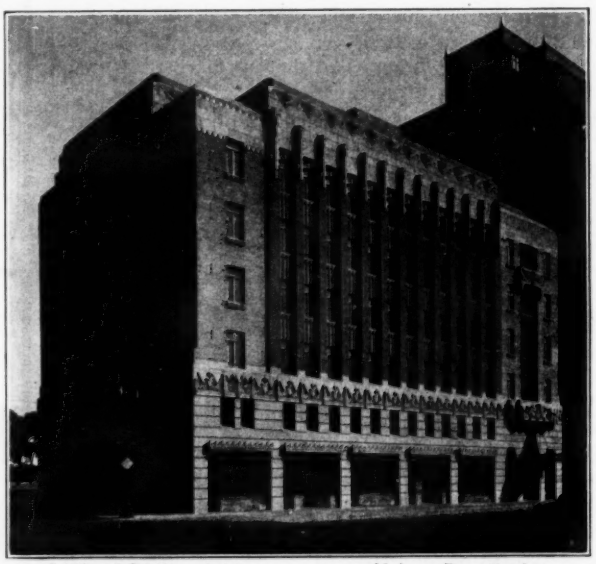
FLAGG UNIONS
FF
Many of our friends tried a sample order and now order them by the barrel, because their trade liked them. We feel sure you will not be disappointed if you follow their example, and order a few FLAGG UNIONS.
FF
STANLEY G. FLAGG & CO., Inc.
1421 Chestnut St.
Philadelphia, Pa.

SLOAN ROYAL · MARINE · GEM FLUSH VALVES

Warren & Wetmore, *Architects* Jas. McCullagh Co., *Plumbers*
Nason Mfg. Co., *Fixtures*

NEW YORK CENTRAL BLDG.
New York City
Equipped throughout with

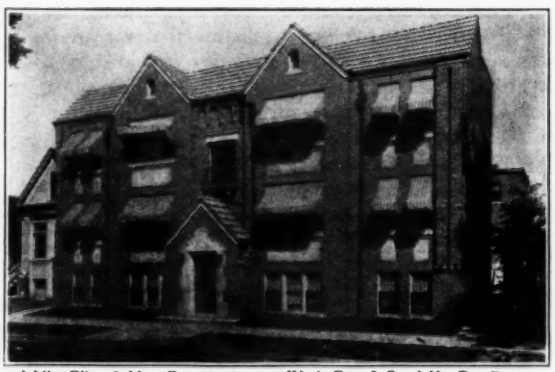
ROYAL
FLUSH VALVES



Schilling & Schilling, *Architects* Hickman Bros., *Plumbers*
Hoodman Plbg. Supply Co., Los Angeles, *Fixtures*

LA FAYETTE HOTEL, Long Beach, Calif.
Equipped throughout with

MARINE FLUSH VALVES



Miller Plbg. & Htg. Co., *Plumbers* W. A. Case & Son Mfg. Co., *Fixtures*

VERNOR MANOR APARTMENTS
Detroit, Mich.
Equipped throughout with

GEM FLUSH VALVES

SLOAN VALVE CO.—CHICAGO

Branches in All Principal Cities

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Plumbing and Heating Materials Move Slowly

BUSINESS in plumbing and heating was slow in the country's large jobbing centers during the last two weeks of the year, and activity was generally less pronounced than in the preceding like period. Buyers for wholesale houses were taking in material only for fill-in purposes and reports indicate that not a great deal of ordering has been done by jobbers for delivery after the first of the year. Consumption requirements of master plumbers and heating contractors were as a whole light and by the end of the period most wholesalers were busily engaged in their annual stock counting. Manufacturers have good stocks in practically all lines and shipments from sources are prompt. No word of price changes on any of the major commodities had been received from manufacturers at the time of going to press.

During the month of November, construction contracts were awarded to the extent of $391,012,500 *in the 37 states east of the Rocky Mountains, according to F. W. Dodge Corp. These states include about* 91 *per cent of the total construction volume of the country. The decline from the October total* ($445,642,300) *was a little more than* $54,000,000, *or* 12 *per cent. The decrease from the November* 1928 *total* ($471,482,200) *was about* $80,000,000, *or* 17 *per cent. The New York and Northern New Jersey district and the Northwest were the only two districts showing increases over the October* 1929 *and November* 1928 *records.*

The November construction record brought the amount of new building and engineering work started in the 37 states since the first of the year up to $5,437,922,400 *as compared with* $6,195,529,800 *for the corresponding period of last year, the decrease being* 12 *per cent.*

NEW ENGLAND

Monthly Activities Show Appreciable Decline—

While the month of December showed a seasonal degree of activity in construction, master plumbers and heating contractors report considerable decline in their operations. There have been lettings of new contracts, and actual commencements of new developments of major proportions during the past three or four weeks, but such activities have benefited comparatively few contractors and jobbers. Construction both present and potential has fallen off considerably during the closing weeks of the year. Industrial, commercial and educational enterprises totalled $12,453,000 for the month of November, as compared with $9,073,700 for residential buildings. The total volume of construction contracts let in the New England states during the last month amounted to somewhat over twenty-four million dollars as compared with approximately forty million for October of this year and thirty and a half million dollars for the corresponding month of 1928. In the period from January 1 of this year up until December 1 there has been recorded a loss of approximately 17 per cent in new construction started, as compared with the same period of last year.

Distributors of plumbing and heating materials, while competing keenly for the somewhat depreciated volume of business existing, have been busily occupied in preparing for their annual inventories. They have allowed their stocks to run down to low levels but they have sufficient assortments, however, to maintain their usually prompt delivery service to their trade.

Manufacturers' salesmen, according to the majority of reports, have made only scattered and small bookings during the month. Supplies at sources are of sufficient volume as to warrant expeditious forwardings when requested by jobbers. Producers' prices continued to reflect the strength and unchanged levels which past several months contained.

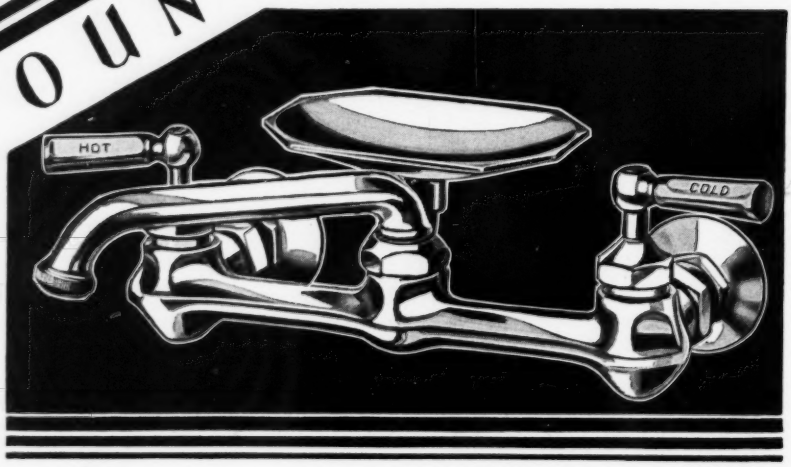
Soil Pipe

The character of master plumbers' soil pipe requirements has not varied greatly over the past four weeks. Construction is at the stage where but little need for this commodity is expressed and this condition is reflected in wholesalers' reports of diminishing sales. The latter have been thinning out their stocks as the first of the year approaches and foundries have naturally been deprived of any active business during the month. Makers are in possession of ample reserves and can forward without delay. No price changes have been announced by foundries.

Pipe—Brass, Steel and Wrought Iron

Trading in the various classes of pipe showed no extraordinary activity during the past several weeks. As a rule, distributors have sufficient stocks on hand; in the face of inventory taking, have been placing orders only for turnovers which they were quite sure would be effected before January 1. Disposals of steel pipe to heating contractors have been of seasonally good dimensions throughout the month and jobbers consequently were obliged to do some replacing of depleted sizes. Movements of wrought iron pipe to and from distributors' warehouses fell off somewhat since first of month. Wholesalers' orders of brass pipe have been minimized yet manufacturers state that weekly receipts of frequent small size commitments by distribu-

ANNOUNCING



Furnished with metal soap dish and metal handles only.

CAPITOL

The BOHN-ART faucet

Here is the best looking and most finely made sink fixture that money can buy.

Of red brass with from 79 to 82% copper content, and chromium plated, giving it a lasting finish without attention, only the best of materials obtainable enter into its construction.

With the great interest that is now being centered by the housewife upon improving the appearance and enhancing the utility of her kitchen, this Bohn-Art faucet should prove a real money-maker for the alert dealer.

Product of one of the largest concerns in the industry, it is backed by unexcelled manufacturing facilities and financial resources. Write us for price quotation.

Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT~MICHIGAN

tors are quite satisfactory for this period of the year. Shipments from sources are promptly executed. Mill prices are unchanged.

Fittings

Cast iron fittings are in slightly better demand than brass and malleable items, according to wholesalers. Sales, however, are by no means extensive for the two-week period just passed has contained a further abbreviation of contractors' requirements. Manufacturers also allow that their shipments have fallen off but this, in their own words, is not contrary to expectations for this season. At this writing distributors report that their supply of fittings has been well pared and the first of the year will show only skeleton stocks. Factory quotations continue to be firm and unchanged. Deliveries are not delayed.

Enameled Ware

Average weekly placements by wholesalers in factory representatives' hands reflect both the continuing decline in consumption needs and also the very close range pre-inventory buying methods of distributors. Some jobbers are fortunate in having secured heretofore comparatively good size contracts on which their enameled ware shipments during the month offset after a fashion, deficiencies in day-to-day dispositions. Manufacturers are not over-abundantly stocked at sources nor at their local warehouses, but show ability, however, to fill satisfactorily the comparatively small commitments of jobbers. Price sheets of producers have undergone no change.

Pottery

There has been practically no variation from previous reports of wholesalers and pottery men as regards volumes of new business received. Pottery installations continue to account for light movements from jobbers' warehouses, except of course where special operations have reached the stage at which pottery installations have become necessary and wholesalers have effected shipments of special ware that they had been holding. The latter have been endeavoring to reduce their holdings of staple items and potters consequently have experienced a light month. Regular ware can be quickly supplied however, when called for by either master plumbers or distributors. Prices of makers are firm and have not been changed.

Plumbers' Brass Goods

It is reported that some wholesale houses are interested in their early year requirements and have contracted for January and February shipments. Advance orders are comparatively scarce, however, according to brass salesmen's statements, for in previous years they would have accumulated a number of future delivery orders from wholesalers, specifying shipment on definite dates throughout the first quarter of the following year. Current business is naturally somewhat retarded, the reduced demand from plumbing contractors reflecting in wholesalers' abbreviated shipments of both cast and tubular products. Deliveries are being promptly granted. Manufacturers have not departed from previously existing price sheets.

Range Boilers

Manufacturers find that business of new nature is somewhat light, for wholesalers have sufficient quantities of range boilers on hand to satisfy the demand of their trade and show decided efforts to decrease rather than augment their present holdings. A number of factories state that their sales of automatic gas storage systems have helped to keep their monthly sales totals at a fair seasonal level. Factories are sufficiently well equipped to make forwardings on dates requested. Published price quotations of makers have not been changed.

Boilers and Radiators

Heating equipment has enjoyed a better position in consumption demand during the month of December than have many commodities in the plumbing line. Distributors and makers have been fairly busy in attending to their shipments, even though their activities have become lessened as compared with their October and November shipments. All in all, however, producers express satisfaction with their early monthly receipts and believe that the year's totals of sales will compare favorably with those recorded for previous years. There are ample stocks at manufacturing points to care for quick shipment requests. No price revisions on the part of producers are noted.

CENTRAL WEST

Demand Maintains Slow Pace—

The past two weeks were in general rather quiet ones for those connected with the plumbing and heating business in this territory. Contractors as a group were only moderately busy and, consequently, their demands on wholesalers were light. The latter in turn were giving most of their attention to their annual stock counting and manufacturers' salesmen had little to report in the way of fresh business for the period. The majority of reports are that not a great deal of business has been placed with manufacturers, for after the first of the year shipment, and considerable of the orders now being placed by wholesalers call for immediate shipment.

The heavy snow and cold weather of the past week or so has been a handicap to construction, although the colder weather brought forth a better demand for repair parts to heating systems. Manufacturing sources of supply have good stocks on hand and are able to meet jobbers' requests for quick shipment. No word of price changes on any of the major commodities covered by this report had been received from manufacturers at the time of going to press.

A total amount of $86,303,100 was contracted for in new building and engineering work during November in the Central West, according to F. W. Dodge Corp. A comparison made shows that the above total was off 27 per cent from the preceding month and a 37 per cent drop was recorded from the corresponding month's record for 1928. New construction started in the Central West during the past eleven months has reached a total of $1,584,483,100, which represents a decrease of 13 per cent from the corresponding period of 1928. The total for last year was $1,814,315,400.

Soil Pipe

The last two weeks of the year saw little activity in the soil pipe market. Contractors are using only small quantities of soil pipe and, with their turnovers light, wholesalers found no necessity for coming into the market for additional supplies. Most jobbers are now in the midst of stock counting and hence are not desirous of ordering. Foundry stocks are large enough to take care of business promptly.

Pipe—Steel and Wrought Iron

Contractors' requirements along the lines of steel and wrought iron pipe showed little if any change in the last two weeks of the year in comparison with the preceding fortnightly period. The plumbing and heating field is taking only average quantities of pipe for this season, according to most reports. Mills have good-sized stocks on hand and neither contractors nor wholesalers report any difficulty in obtaining material. There has been no change reported on the part of steel and wrought iron pipe mills in their quotations to their distributors.

Fittings

Wholesalers are adhering closely to the close range buying policy on all

types of fittings. Demand from contractors is no better than fair for this season of the year. Inventory taking seems to be the primary thought among wholesalers when orders are placed with makers and, consequently, commitments are usually for bolstering of depleted sizes only. Stocks at sources are well assorted and of ample proportions and no difficulty is reported in securing material from factories. Makers have not changed their published prices to wholesalers.

Enameled Ware

Manufacturers' representatives interviewed during the past fortnight say for the most part that business in enameled ware was very light during the period. Contractors are not calling upon wholesalers for any large quantities, and the latter, with inventory time now at hand, are devoting a large part of their time to stock counting and are not taking in any fresh stock, except to meet emergencies. Factories can meet shipping requests without delay. No change has been announced by makers in their published prices.

Pottery

Requirements of master plumbers for pottery are closely in line with contractors' needs in the line of enameled ware. New business reaching potters calls for quick shipment, as these orders are to take care of immediate needs of contractors. Not a great deal of business is reported to have been placed for after the first of the year delivery in this territory. Potters are in a position to grant quick shipments on staple items and they have not changed their published prices.

Plumbers' Brass Goods

Salesmen for cast and tubular brass goods producers say that business continued light in the fortnight just passed. Wholesalers generally have large enough stocks of brass goods to see them through for some weeks, and with inventory taking uppermost in their minds are not desirous of adding to their holdings at the present time. Reports received so far do not indicate a great deal of purchasing for shipment after the first of the year. Factories are in possession of good stocks.

Range Boilers

Contractors' requirements along the lines of range boilers are more or less regular from week to week, according to a number of reports. The total consumption of range boilers, though, is only "fair" for this period of the year, it is said. Wholesalers generally have sufficient stocks on hand to tide them over until the first of the year and in emergency can procure shipments from sources on short notice. No price changes have been announced by makers since our last report was published.

Boilers and Radiators

The offices of boiler and radiator manufacturers say that business held at only a fair seasonal pace in this territory during the past two weeks, and activity is quite apparently below what it was a year ago at this time. The recent cold snap in this district stimulated to some extent the call for repair parts. Factories are able to grant quick delivery service and the published prices of makers have not been changed.

NEW YORK

Decline for Year End Inventory—

Except in the cases of a few wholesalers whose fiscal year does not coincide with the calendar year, preparations for inventory restrained buying except for minimum requirements of contractor customers. It is almost universally stated that inventories are lower at this time than they have been for many years, and wholesalers' requisitions on plants, although small, are so frequent as to give point to this condition.

The year ends with business at a low ebb following the trend since the first of the year, but the outlook is more hopeful than it has been in the past, in the opinion of leading interests in trade circles, owing to low inventories and well sustained requirements for replacement work. New building is at a minimum with the exception of several large projects in this territory, as evidenced by awards of structural steel contracts which total 51,000 tons, against 35,000 tons in the preceding period and inquiries of 42,000 tons, as compared with 34,000 tons. The awards included the Union League Club Building, several large apartment houses, two buildings for the Central Hanover Bank & Trust Company, and there were inquiries for several structures, including one hospital.

Soil Pipe

The tapering off in specifications which has been caused by the anticipation of inventory has resulted in reducing shipments of soil pipe to a minimum. Makers report no changes in price and wholesalers state that there has been very little inquiry, as it is usual to experience a seasonal lull at this time. A change in the freight rate from the Southern territory into New York and New England is reported to be scheduled to take effect within the near future, although this will have but little effect in speeding specifications under existing conditions, according to most wholesalers.

Pipe—Brass, Steel and Wrought Iron

Activity in brass pipe has been relatively better than in most other commodities, owing to the fact that stocks on hand have been very low for some time and contractors' demands are speedily reflected on mills by wholesalers. There has also been some activity in steel and wrought iron pipe reflecting the completion of large operations now in the finishing stages. Prices are firm at all points of distribution and inventories are seasonally low.

Fittings

Activity in the fittings division has held up relatively well owing to the fact that frequent specifications and low inventories have been the rule for some time. In some sections of the territory it is reported that malleables are moving in volume relatively favorable to that of a year ago. Prices are unchanged from the time of our last report and stocks on hand are adequate among wholesalers, although it is felt that several leading interests will be in the market shortly after the first of the year. Manufacturers' shipments are prompt with the exception of special items, of which very few are carried in stock at this time, owing to the slower turnover during the past year and the unwillingness of manufacturers to tie up funds in slow moving items.

Enameled Ware

There has been a negligible volume of enameled ware during the past fortnight, as contractor demand has been slow owing to the holidays and wholesalers are not prepared to replenish stocks until after inventory. Manufacturers are in position to give prompt service, although it is reported there has been some delay for the holiday season in special items which were purchased for reinstallation as gifts. Prices are firm at all points of distribution and wholesalers' inventories are at a minimum, according to most reports.

Pottery

Aside from finishing material for two large projects which are nearing completion in the Metropolitan area, very little activity is reported in the pottery market. Manufacturers have geared their production closely to de-

mand and no excess inventories are reported at plants. There have been no changes in price, according to several wholesalers. Purchases have been held down rigorously in anticipation of inventory.

Plumbers' Brass Goods

Specifications for fill-in orders have held up well in this commodity, according to several leading manufacturers. Wholesalers' requirements reflect consumer demand very closely, and it is believed that requirements after the first of the year will be heavier, not only covering consumer purchases but also in the interests of larger shipments for economical handling. The statistics of copper production and consumption have been watched closely by students of the situation, and in the opinion of many the very low available supply of copper compared to that of other commodities is more than an offset for the feeling on the part of many who do not own it that the price is relatively high. Inventories are low and prices are characterized as firm.

Range Boilers

During the past fortnight the volume of range boilers moving into consumptive channels has been practically negligible, according to several wholesalers interviewed. Inventories have been reduced considerably with a view toward the year end and manufacturers are anticipating heavier specifications after the turn of the year. There have been no changes in price and plants are able to forward wholesalers' requirements without delay.

Boilers and Radiators

The demand for heating materials, while smaller than a year ago, has nevertheless remained consistent and well sustained to the end of the year. Inventories of wholesalers have for some time been small and consumer demand has consisted largely of requirements for replacement and renovations. Prices of manufacturers and wholesalers are alike firm, and requirements are in most instances promptly taken care of at sources of production.

MIDDLE ATLANTIC

Buying Tone Remains Moderate—

The rate at which plumbing and heating materials moved from both the manufacturers' and the jobbers' standpoint in this territory during the period covered by this review was very irregular and had a downward trend. Most producers and jobbers are engaged in taking inventory or finishing inventory, thus nullifying their interest in purchases especially as far as the wholesaler is concerned, except in cases of completing delivery of materials for operations nearly finished. Contractor demand showed little change for the period in comparison with the earlier part of the month.

Jobbers are placing orders for only such materials that are necessary to tide them over until the new year, and, according to most of the manufacturers interviewed, comparatively few orders are being placed with them for future delivery. Manufacturers for the most part, however, have adjusted their production program so as to meet all contingencies as they arise. No changes in producers' prices to the wholesaler were announced during the fortnight. Deliveries on the whole are being made in a satisfactory manner.

The value of contracts awarded in the Middle Atlantic section has dropped quite appreciably during the past two weeks, according to the F. W. Dodge Corp. The monetary value of contracts for the 49th week was $4,812,100 and for the 50th weekly period was $4,967,000, as compared to totals of $9,625,000 for the 47th week and $10,202,500 for the 48th week.

Building reports emanating from seven Virginia cities contained in a summary of the fifth Federal Reserve Bank of Richmond for October give the following figures: Danville, Va., shows a loss of $47,455, or 87.4 per cent; Lynchburg, a loss of $73,357, or 55.6 per cent; Norfolk, a loss of $301,271, or 62.2 per cent; Petersburg, a gain of $65,500, or 55.9 per cent; Portsmouth, a loss of $213,422, or 83.9 per cent; Richmond, a gain of $222,176, or 69.2 per cent; Roanoke, a loss of $4,258, or 2.7 per cent.

With the exception of one city in the group, alteration work appears to be making considerable gains over new construction. This condition has existed for some months, indicating conclusively that owners are giving more attention to repairing, adding to or remodeling existing buildings.

Soil Pipe

Whatever activity makers of soil pipe were engaged in during the past two weeks was chiefly concerned with fulfilling orders placed with them at some past date. While manufacturers and wholesalers alike are able to deliver goods promptly, the demand has been such as to cause little hardship. Jobbers apparently had ample stocks on hand to meet all contractor requirements, which, as a rule, were light, thus reflecting only small fill-in orders to producers. Prices remained at the same previous level.

Pipe—Brass, Steel and Wrought Iron

A decreasing interest in pipe of all three types was noticeable in the time covered by this review. Jobbers were not prone to place last of the month business during this season with the frequency encountered previously. Brass pipe demand was light in the instance of practically all producers' salesmen interviewed, a condition which has existed all during the month. Steel pipe, after enjoying a substantial demand during late November, has slackened considerably and the same is almost identically true of wrought iron pipe, with wholesalers buying only as they needed pipe to fill the immediate commitments of their contractor customers. Deliveries from all sources are reasonably prompt, and price sheets are unaltered.

Fittings

Little transpired during the period in the fittings market to give any decided change in tone to the month. Distributors are buying only in sufficient quantities to fill any gaps that might become evident in their business at this time. Master plumbers and heating contractors' requirements are not as great as they were during the previous month, and only the latter's demands are seasonably good. Shipments from factories are made without delay and makers' prices have not deviated from former levels.

Enameled Ware

Enameled ware manufacturers have been receiving only small quantity orders from distributors during the period. Business on the whole was very quiet, jobbers purchasing only enough goods to tide them over until they re-establish their stocks. Manufacturers have sufficient fixtures in their warehouses to supply all demands as they are needed. Master plumbers' wants are not reaching the impetus they were during the last thirty-day period. Some activity is still evident in the shipping of enameled iron fixtures on orders placed in the past. From reports gathered prices remain the same and are steady.

Pottery

From the opinion expressed, the pottery volumes for the year will fall behind those of last year in this section. The past fortnight has not bolstered the total to any great extent. Pottery business in the main has been light in this section during the month.

and little is expected of the remaining few days. Potters have well assorted stocks on hand and have not disturbed their published prices to wholesalers.

Plumbers' Brass Goods

The brass goods market remains in approximately the same condition it has been in during the past few months. A buyer's market has prevailed for some time, and the past two weeks are no exception. Jobbers, for the most part, have only fair stocks on hand, but are buying only in small replenishing quantities. This is true of both cast and tubular brass goods. Shipments are prompt and producers' prices are unchanged.

Range Boilers

The rate of range boiler shipments has depreciated slightly along with other seasonal declines. Last of the month specifications are contended to be light by all concerned, and only a fair amount of business is on the books of manufacturers for first of the year delivery.

Boilers and Radiators

According to manufacturers' representatives, boiler and radiator sales have slackened somewhat from the pace maintained during the past few months. The approaching holiday season and stock taking are contributing factors for this decline in contractor demand. Prices are unchanged.

SOUTHEAST

Business Is Seasonal—

With a few exceptions, plumbing and heating business in the Atlanta area is holding at a normal seasonal level, despite the general lull in construction work. While new business in immediate prospect is not especially encouraging, most observers feel that the business developing from construction projects now under way will carry-over until the revival of construction work scheduled to start after the holiday season. The seasonal increase in heating material has strengthened the market and given it a rather steady tone, even though not coming fully up to expectations based on previous years. Many wholesalers see heartening signs in the expected industrial expansion program for 1930 on the part of federal, county and city government and private enterprise.

Wholesalers are maintaining the policy of keeping their stocks at a level commensurate with the demands made by the trade. No change in price sheets was reported and no difficulty in securing material promptly as ordered was experienced.

Soil Pipe

In the opinion of most wholesalers interviewed, the movement into consumption of soil pipe is seasonal, with business holding its own for this time of the year. Stocks are being pared to the minimum, just sufficient to meet the current demands of the trade. Prices from manufacturers to wholesalers have not been changed, and shipping is generally without delay.

Pipe—Steel and Wrought Iron

Jobbers are rather reluctant to place large orders with the manufacturers and hence factory-placed orders for the past two weeks were light. Wholesalers in the Atlanta area, generally, report fairly good-sized stocks in brass, steel and wrought iron pipe. Wrought iron pipe is moving at a fair rate and brass pipe continues in good demand. Contractors are ordering fair-sized quantities of steel pipe, principally for re-installation work. Factories are shipping without delay and price sheets to wholesalers are unchanged.

Fittings

Small-sized orders, but of good variety, is the gist of the sales trend

The Stock Market

Range for Week Ending December 21, 1929†

Par Value	1929 High	1929 Low		*	Weekly High	Weekly Low	Weekly Close
NP	223⅜	77	Air Reduction Sales Co	A	125½	107	113
NP	55⅜	28	American Rad. & Stand. San. Corp	A	33	29⅜	30
25	144⅛	60	American Rolling Mills Co	A	89½	75	78½
50	140	70	Anaconda Copper Mining Co	A	80¼	70	72½
NP	62	32	Bastian-Blessing Co	C	42	39	40
NP	140¾	78¼	Bethlehem Steel Co., com	A	95¼	87⅛	90¾
100	128	116⅜	Bethlehem Steel Co., pfd	A	123	122⅜	122¾
NP	55¼	16¼	Brunswick-Balke-Collender Co	A	21⅞	17¼	18
NP	192⅞	50	A. M. Byers Co., com	A & E	93⅞	73¼	80¾
100	121¼	105	A. M. Byers Co., pfd	A & E	109	109	109
100	127½	118	Century Electric Co., com	F	118	118	118
50	4¾	2	Chicago Nipple Mfg. Co., "A"	B	3	3	3
50	1½	1	Chicago Nipple Mfg. Co., "B"	B	1	1	1
25	48	42	Crane Co., com	C	44	43	44
100	119	112	Crane Co., pfd	C	113¼	113¼	113¼
20	21	11½	Eagle-Picher Lead Co	H	13¼	13	13
NP	35	11	Fairbanks Co., pfd	A	29¾	23¼	23¼
NP	54⅞	29¾	Fairbanks, Morse & Co., com	A	35	33½	34
100	110⅞	103	Fairbanks, Morse & Co., pfd	A	104	103	103
NP	24¾	12	Greenfield Tap & Die Corp	B	13	13	13
NP	38	23	Iron Fireman Mfg. Co	C	26	24¼	25
NP	242¾	90	Johns-Manville Corp., com	A	125¾	110¼	115½
100	123	118	Johns-Manville Corp., pfd	A	121½	121¼	121¼
100	126	117	Jones & Laughlin, pfd	A & E	120	118½	119½
NP	123¼	59	Minneapolis-Honeywell Reg. Co., com	A	70	63½	63½
NP	75	48	Modine Mfg. Co	B & C	52⅞	50	52
NP	55⅛	21	Motor Wheel Corp	A	27¾	26¼	26⅜
NP	67½	30	F. E. Myers & Bro Co., com	A	38½	35⅛	36½
100	105	101½	F. E. Myers & Bro. Co., pfd	G	102⅛	101½	102⅛
100	210	129¼	National Lead Co., com	A	147½	133⅜	133¾
100	141½	138	National Lead Co., pfd. "A"	A	140	139	139½
100	122	116	National Lead Co., pfd. "B"	A	119	116⅛	118
NP	17	2	National Radiator Corp., com	A	2½	2⅛	2⅛
NP	41	1⅛	National Radiator Corp., pfd	A	5	1½	3½
5	31	23	Herman Nelson Corp	B	28¼	28¼	28¼
NP	92	69	Ohio Brass Co., "B"	B & G	77	75	75
NP	31½	28½	Revere Copper & Brass, Inc., com	A	31	29⅞	30
NP	78	75	Revere Copper & Brass, Inc., pfd. "A"	A	75	75	75
NP	19⅜	2⅛	Richmond Radiator Co., com	B	3	2½	2½
NP	36½	9	Richmond Radiator Co., pfd	B	9	9	9
NP	44½	29	Ruud Mfg. Co	C	29	29	29
NP	55¼	15	Spang, Chalfant & Co., com	A	23¾	18	18½
100	98	89	Spang, Chalfant & Co., pfd	A	94⅞	91⅞	94⅞
NP	39½	20	Time-O-Stat Controls Co., "A"	C	28	26¼	26¼
NP	140	59	Union Carbide & Carbon Corp	A	79½	68¼	72⅛
20	55⅞	12	U. S. Cast Iron P. & F. Co., com	A	20½	18⅛	19⅞
NP	19	15	U. S. Cast Iron P. & F. Co., 1st pfd	A	15⅞	15¾	15¾
NP	20	18¼	U. S. Cast Iron P. & F. Co., 2nd pfd	A	18½	18¼	18½
NP	62¼	35	U. S. Radiator Corp., com	B & D	45½	45	45
100	100	100	U. S. Radiator Corp., pfd	D	100	100	100
NP	65	15	U. S. Rubber Co., com	A	29⅝	24	25⅞
100	92½	40⅛	U. S. Rubber Co., pfd	A	52¾	50½	51⅛
100	261¾	150	U. S. Steel Corp., com	A	174	158	163
100	144¼	137	U. S. Steel Corp., pfd	A	142	141¾	141¾
NP	22½	3	Universal Pipe & Radiator Co	A	3⅞	3½	3½
NP	49⅞	22	Walworth Co	A	29	25	26
NP	35	6⅛	Wayne Co., com	B & C	6⅛	6¼	6⅛
NP	46	26¾	Wayne Co., pfd	B & C	29⅜	27½	29¼
100	110	93	Wheeling Steel Corp., com	B	110	108	110
100	135½	131½	Wheeling Steel Corp., pfd. "A"	B	133	133	133
NP	29¾	16	Williams Oil-O-Matic Htg. Corp	C	16	16	16
NP	143	91	Youngstown Sheet & Tube Co	A	110⅛	110	110

*Where listed—

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Pittsburgh Stock Exchange
F—St. Louis Stock Exchange
G—Cleveland Stock Exchange
H—Cincinnati Stock Exchange

†If there is no trading during the current week, range represents last week recorded.

The WORST TRADE EVIL...

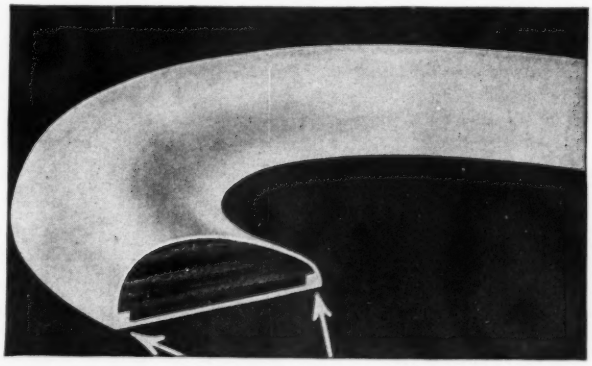
in a profitable business now wiped out!

Every plumber knows that one of the most profitable things he sells is the modern type of white, sheet-covered toilet seat, now established as the standard for all high-class private bathroom installations. Merchandising it by modern methods, he demands that the seat shall protect his profit by requiring of him a minimum of replacement service after it is sold.

In designing a seat of this type, we determined to make one so strong that we could give it a lifetime guarantee. The new Brunswick is such a seat, with pyralin 9 times thicker at the critical edges, and 800 percent stronger.

This patented feature which cushions and reinforces the edges, and positively eliminates opening or cracking at the edges, appears in the cross-section as "Two Little White Squares."

Patented, ingenious, offering an important advantage easily demonstrated by means of the handy cross-section (see diagram) and quickly appreciated by customers, the "Two Little White Squares" not only make this new Brunswick Seat easy to sell, but also are a guarantee that your profit, once made, is yours to keep.



IN this cross-section, just a glimpse of two little white squares. That's all you can see of the Brunswick patented 9-ply reinforcement feature. But it means tough, wear-resisting pyralin at the critical edges 9 times thicker, 800 percent stronger!

Send for free sample Cross-section and catalog

The moment you standardize on Brunswick White, sheet-covered seats, you can stop worrying about the profit of your toilet seat business.

Without obligation we will send you a catalog of our complete line of white sheet and colored sheet seats, and also a free cross-section showing the "Two Little White Squares." Simply use coupon below.

THE BRUNSWICK-BALKE-COLLENDER CO. • Chicago

Atlanta	Chicago	Detroit	Milwaukee	New York	Seattle
Birmingham	Cincinnati	Harrisburg	Minneapolis	Philadelphia	St. Louis
Boston	Cleveland	Houston	Nashville	Pittsburgh	Tampa
Buffalo	Dallas	Kansas City	Newark	Richmond	Washington
Charlotte	Denver	Los Angeles	New Haven	San Antonio	Montreal
Chattanooga	Des Moines	Memphis	New Orleans	San Francisco	Ottawa

Toronto Havana

Adelaide, Australia Sidney, Australia • Johannesburg, South Africa

Brunswick

WHITE SEATS

WITH 9-PLY REINFORCED EDGES

Dept. **F-20,** Seat Division,
The Brunswick-Balke-Collender Co.,
623 South Wabash Ave., Chicago.

Send your complete catalog of Brunswick Seats, together with free sample cross-section of the Brunswick white, sheet-covered seat.

Name .....

Address .....

City .....

The Metal Market

	Dec. 24	Oct., 1929	Aug., 1929	1928
PIG IRON—				
No. 2 foundry, Chicago	$20.00	$20.00	$20.00	$18.54
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.90c	1.95c	1.95c	1.87c
*Blue annealed sheets, No. 13, Pittsburgh, per lb.	2.35c	2.35c	2.35c	2.03c
Black sheets, No. 24, Pittsburgh, per lb.	2.75c	2.80c	2.85c	2.75c
Galvanized sheets, No. 24, Pittsburgh, per lb.	3.50c	3.50c	3.55c	3.50c
TIN—				
Straits tin	40c			
LEAD—				
Chicago	6.25c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	14½c	Copper, light	12½c
Block tin	35 c	Copper, uncrucibled wire	13¼c
Brass, light	7 c	Faucets and valves	8½c
Brass, heavy mixed	7¾c	Lead, heavy	5½c
Brass, red	11½c	Solder Joints	9 c
Copper, crucible	14⅛c		

NOTE: Prices are those quoted on Tuesday of this week.
* Comparisons are with old blue annealed base, No. 10.

for the past two weeks, according to most jobbers interviewed. Cast iron fittings were in moderate demand by heating contractors. Cast iron and malleable fittings received little attention and most jobbers state that the fittings market is affected somewhat by the seasonal condition existing in this section in the plumbing and heating trade. Wholesalers report stocks in good proportions and no difficulty was reported in receiving orders from the makers promptly.

Enameled Ware

Staple ware orders from jobbers showed a slight decrease in the past fortnight. Residential construction, which has reached a low level in the Atlanta area, has materially affected the enameled ware market, but with two or three large construction projects at the installation stage, sales of enameled ware were somewhat bolstered up. No price change occurred and shipping is prompt and regular.

Pottery

Little change was reported in the pottery field since our last report, save that jobbers are reducing their orders to the makers and are calling on their own stocks to supply the demands of the trade. According to several representative jobbers, the movement into consumption of pottery will show little change for the better until after the first of the year. Contractors are busy chiefly with reinstallation work. Shipments from the makers are reported as prompt in most instances and no change in price sheets have been announced.

Plumbers' Brass Goods

In the experience of most jobbers, brass goods lines continued in fair demand. Most wholesalers have a good assortment of both cast and tubular goods, but are inclining on ordering replacements only with the view toward keeping good working stocks on hand. No announcement of price changes has been received and shipments are prompt.

Range Boilers

No new development of any consequence occurred in the range boiler field during the past two weeks, and movement into consumption of this commodity continued light. Jobbers' requisitions to the makers were reported as specifying small quantities, sufficient, apparently, to assure fair working stocks. Master plumbers were engaged primarily in finishing work, with little new business developing. Factory quotations were unchanged and shipments from production sources were unretarded.

Boilers and Radiators

According to most jobbers and salesmen interviewed, turnovers in boilers and radiators were holding at a moderately good rate for this season of the year. Little new business developed, but sales were stimulated through the fact several major construction projects reached the installation stage. Heating contractors continued actively engaged in finishing and reinstallation work. Jobbers are reducing their commitments to makers, but are maintaining stocks of sufficient size to care for the immediate needs of the trade.

PACIFIC COAST

Coast Business Shows Little Change—

The last weeks of December finds Coast business continuing at a moderate volume, with very little change in demand noted since the last report. Jobbers' stocks as a whole are at a low point on account of approaching inventories, but as a rule are sufficient to take care of the trade's present needs without difficulty. Jobbers' prices to the trade are firm and show little or no change.

Soil Pipe

The demand for soil pipe continues to be mostly in small lots for immediate requirements with few if any inquiries out for future needs. The total volume moving at present is not very heavy. Distributors' stocks are sufficient to take care of the trade's needs without delay. Distributors' prices remain unchanged.

Pipe—Steel and Wrought Iron

Steel pipe is moving in a moderate volume, the trade restricting its purchases to present needs only, which are not heavy. Distributors as a rule have well assorted stocks of steel pipe and immediate delivery can be secured without delay. Wrought iron pipe is moving in moderate volume, about normal for this period of the year, and the total volume moving at present is not heavy. Distributors of this commodity generally have sufficient stock on hand at the present to take care of the trade's needs without delay. Distributors' prices to the trade remain unchanged.

Fittings

Little if any change has been noted in the demand for fittings during the past few weeks and the demand continues to be of a moderate nature, most orders being for small lots for immediate requirements. Distributors generally have sufficient stocks to fill all orders received without delay.

Enameled Ware

Most enameled ware being used at present is for contracts already secured which are ready for this commodity. Very few purchases are being made for future delivery. Distributors generally have about a normal stock for this period of the year and can secure prompt shipment from all Coast factories. Distributors' prices to the trade remain unchanged.

Pottery

Pottery continues to move in a moderate volume, the trade purchasing only such ware as is needed to complete contracts already secured and few inquiries are out for future needs.

Addresses Radio Audiences on Sanitation

Under the auspices of the New York state department of health, Prof. Henry N. Ogden of the department of sanitary engineering, Cornell university, gave a radio health talk over station WGY, on December 18. Mr. Ogden's address was No. 392 of a series of Health News Service radio talks being broadcast periodically in the interest of national health and sanitation. Mr. Ogden looks upon the sanitary engineer as one of the greatest assets to our modern civilization. The complete speech follows:

"A recent writer on education strongly objects to endowed colleges and universities offering vocational training to their students. He says that endowments were provided expressly to help educate men who should be of service to humanity and he cites teachers and preachers as examples of the kinds of men originally trained in the older colleges.

"Today, on the other hand, colleges advertise their vocational courses, emphasizing the bread-and-butter purpose of an education so that, as this author says, the investment of a university in its graduates is no longer in the interest of humanity, but for the material advantage of the individual.

"It may be that engineering courses as a whole would fall under the condemnation of that author but courses in sanitary engineering do not, since they afford to graduates a kind of knowledge and an outlook on the needs of humanity that return, in useful public service, many times more than the contribution made to the cost of their education.

"For sanitary engineering deals with engineering problems of public health. It cultivates the imagination so that it sees the health needs of a community. It recognizes deplorable conditions of water supply, of sewage disposal, of ventilation, of wastes disposal, and of drainage, conditions, that if unchanged would surely affect adversely the vitality if not the lives of those affected. For example, a sanitary engineer perceives a real menace to life and health in a city's water supply that is contaminated with sewage, even though the place of contamination is miles above the water-works intake.

"But not only does he recognize the danger, but he is competent to remove it. The fact that the sanitary engineers of the state department of health, working through the local officials of cities and villages, have reduced the number of deaths from typhoid fever in the state by at least 2,000 persons this last year, as compared with the number of deaths twenty-five years ago, is an evidence of the service rendered.

"There need be then no hesitation for the sanitary engineer about accepting from any university a large share of the cost of his technical education, because from the very nature of his future professional work he will return it seven-fold to the community whom he serves.

"He has, in full, the satisfaction that comes to all engineers in their creative capacity, the joy that always follows the concrete personification of an idea. But the sanitary engineer doubles this joy in the knowledge that his ideas and his works are for the good of humanity, for the greater good health of his community and for the reduction of the death rate from diseases, to oppose which he has been trained."

Make Real Money on Furnace Coil Business

The Globe Sizzler Gives You a Bigger Profit — and Your Customers Get a Better Coil

Patent No. 1649660

The Globe Sizzler is made in different lengths to fit all makes of furnaces. It comes to you ready for installation, each coil packed in an individual carton.

WHY are important plumbing dealers and contractors using the Globe Sizzler for all furnace coil installations? Briefly, here are the basic reasons. The Globe Sizzler:

SAVES TROUBLE for the plumber because it is adjustable to variable water-pipe openings and can be installed quickly.

MAKES FRIENDS with the customer because its patented bend gives greater heating surface and assures free, noiseless flow of water. It contains no pockets such as are found in every elbow or return bend type coil, or other one piece coils on the market.

BRINGS EXTRA PROFITS to you because it costs less than making up ordinary coils, installation is quicker, yet you get more for the complete job.

The Globe Sizzler is a patented one - piece coil, rapidly being adopted by plumbing and heating dealers throughout the country. It is selected by all leading plumbing and heating wholesalers. Write us or ask your jobber for details on the Globe Plan for making your furnace-coil business show you bigger profits.

GLOBE MACHINERY & SUPPLY COMPANY
227 W. Court Ave. Des Moines, Iowa

The GLOBE Sizzler

THE NO-POCKET, ONE-PIECE FURNACE COIL

A Choice of the Best

THAT'S what you get in replies from a "Domestic Engineering" Want Ad.

No matter what your problem —if you want a job or a man for a job, if you have some used equipment to sell or want to buy some, if you want to know what the leading books on plumbing and heating are, if you want bids on a job—a "Domestic Engineering" Want Ad will solve that problem.

Domestic Engineering
1900 Prairie Ave. Chicago, Ill.

Range Boilers

TANKS
for
Automatic
Heaters
To Your Specifications

COIL BOILERS
STORAGE TANKS
Pressure and Special
of All Descriptions

Riveted and Welded — Black and Galvanized

PENNSYLVANIA RANGE BOILER CO.
Main Office and Plant:
S. W. Cor. 24th and Washington Ave., Philadelphia

Poor Quality

It's an easy matter to disguise poor quality in brass goods. Your customer sees only a nice finish that looks all right but cannot discover poor performance until the job is operating.

You can protect your customer from the chance of poor brass goods by insisting upon Enterprise Brass Goods at your jobber's for all your work.

It costs no more than inferior materials.

Enterprise Brass Works
Muskegon :: Michigan

EBW

For Convention Discussion

(Continued from Page 60)

by the bureau. In order to maintain uniformity it is necessary that local codes be arranged in the same manner as the state code as to section numbers and code provisions. Where local conditions warrant they may strengthen the provisions of the state code to properly safeguard the interests of the public. Obviously, additional requirements should be embodied in the sections corresponding with those in the state code. Deviation from this procedure in my judgment must be avoided in order to secure uniformity, as such deviation makes for confusion between the provisions contained in the state and local regulations. Care must be exercised in formulating state or local codes so that the provisions may be based upon fact, so far as present day knowledge permits. No code should contain any rule or provision that is not clear in its intent or purpose and all such provisions should in effect be in the interest of the public but also with due regard to the interest of the industry so as to make it practical in application and enforcement. I mention this, as my experience has conclusively demonstrated that this is an important feature in the success of such a program as we have in our state.

To assist the larger and smaller municipalities three standard plumbing and drainage ordinances are available, the basic provisions of which differ only to an extent as is necessary to meet the needs of the respective municipalities or to make the requirements applicable to the classification of the municipality in compliance with statutory provisions prevailing in our state.

Since the organization of this bureau the following codes and publications dealing with plumbing and domestic sanitary engineering matters have been prepared and distributed conservatively among citizens, schools, libraries, plumbers, engineers, contractors, and others. These codes are especially prepared to meet Wisconsin conditions and needs, and are educational in character. The first three named have received widespread recognition:

1. The Wisconsin State Plumbing Code, prescribing minimum uniform standards which have the force of law and are applicable to any building in this state, public and private, rural and urban.

2. Private Water Supply and Sewage Disposal Systems, treating the subject of farm sewage disposal, or where public sewers are not available, with illustrations. The instructions can be readily followed by the plumber or operator of such installations.

3. Public Comfort Station Code and Rest Room Suggestions, containing all essentials regarding the convenience, location, privacy, design, construction, care in operation or maintenance of such stations.

4. Wisconsin Rural School Privy Code, especially prepared for school purposes and serving to raise the standards of outdoor school toilets and to promote better sanitation.

5. Wisconsin Chemical Closet Code, prescribing minimum standards and providing that such systems be approved by the state board of health prior to installation.

6. Water Supply and Drinking Devices—How They May Spread Bacterial Diseases, a bulletin giving the

Investigate *before* Investing

Every dollar that is spent for advertising is either a good or a bad investment.

And when you buy advertising, you buy circulation, so you owe it to yourself and to the interests you represent to investigate every publication's claims concerning circulations, before you invest.

It is your right to DEMAND circulation facts, not theory—superficial information is not the kind on which to build a successful advertising campaign. Unless each copy of the publication you use is paid for, delivered and read by the kind of people you want to reach, you are paying for waste circulation and perhaps for circulation you are not getting and your advertising dollars ARE NOT producing proper results.

A recognized standard is available to you in Audit Bureau of Circulations' reports. The A. B. C's. methods are uniform and its authority unquestioned.

The Audit Bureau of Circulations places in your hands the authentic and essential facts on circulation that every advertiser should have in order to properly invest his advertising dollars.

The A. B. C. report on DOMESTIC ENGINEERING will gladly be sent to anyone interested.

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

1900 Prairie Avenue CHICAGO

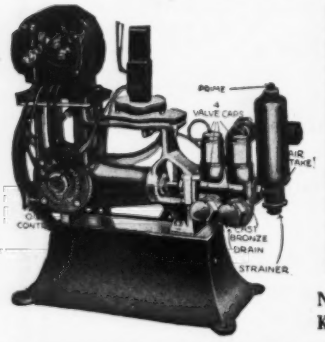
All Lead-Copper-Galvanized Iron

SIMPLEX AND JUNIOR FLASHINGS FOR EVERY ROOF CAN BE HAD IN EACH OF THE ABOVE METALS.

Write for prices and full information on the easily installed, durable SIMPLEX and JUNIOR Flashings.

SIMPLEX MFG. CO.
2644 N. Ashland Avenue
Chicago, Illinois

"Junior Flashings"

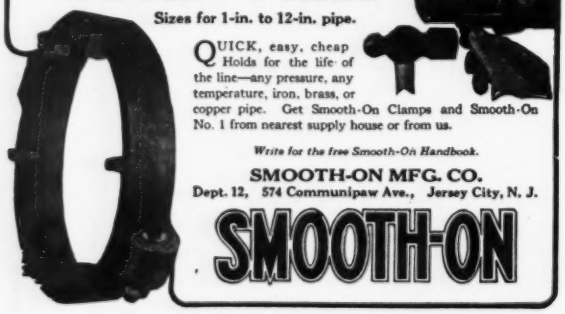


Take the Kalamazoo Water Supply System part by part, and test each item for a defect in any detail of design or workmanship.

You'll know then why Kalamazoo never fails on the job.

NATIONAL WATER LIFT CO.
Kalamazoo - - Michigan

Stop pipe thread leaks with SMOOTH-ON No. 1 in a
SMOOTH-ON CLAMP
Sizes for 1-in. to 12-in. pipe.



QUICK, easy, cheap Holds for the life of the line—any pressure, any temperature, iron, brass, or copper pipe. Get Smooth-On Clamps and Smooth-On No. 1 from nearest supply house or from us.

Write for the free Smooth-On Handbook.

SMOOTH-ON MFG. CO.
Dept. 12, 574 Communipaw Ave., Jersey City, N. J.

SMOOTH-ON

Why Milwaukee's prices are lower—

In these days of price buying most dealers find competitive articles necessary in order to meet contract requirements. Rather than to sacrifice quality for a separate competitive line, the Milwaukee Flush Valve Co. are constantly striving to attain low prices by the use of more efficient and improved production methods.

JUDELL

MILWAUKEE FLUSH VALVE CO.
Dept. D. 1228 Milwaukee, Wisconsin, U. S. A.

important essentials in the selection, installation and operation of such appliances.

7. Lake and Stream Platting and Sanitation Code, dealing with the platting of lands along lakes and streams, particularly as to size of lots, width of streets, building requirements, restrictions as to low land, water supply, toilets, waste disposal and general sanitation, together with suggestions for the protection of public health and promotion of the general welfare.

8. Rules and Regulations Governing Tourist Camps, with Safety Hints for Campers, giving basic principles. (Now being revised and supplemented with specific provisions, and illustrated.)

9. Form blanks for local plumbing permits, intended to advance uniformity throughout the state.

10. Blueprints, specifications and instructions are furnished for plumbing and sanitation appliances sufficiently detailed to permit construction and operation in accordance therewith. This service is intended to make it readily possible to carry out the bureau's recommendations or orders, but is limited to projects of insufficient size to warrant the service of an engineer or architect.

11. Form Ordinances, dealing with matters of sanitation coming under the purview of the bureau, are furnished free for the guidance of municipalities. Of these a large number have been adopted throughout the state, making for uniformity in sanitary regulations.

12. Miscellaneous. General information by correspondence or specific articles relating to installation or operation problems.

Objectives for 1929 and 1930:

1. To undertake a more extensive program of education.

2. To prepare comprehensive illustrated bulletins dealing with well drilling and protection, tourist and outing camp and summer resort sanitation.

3. To further promote plumbing apprenticeship training.

4. To prepare a special bulletin dealing with drinking devices and hand-washing facilities, and their importance from a sanitation viewpoint.

Gains Under Plumbing Law

In summarizing what the Wisconsin state plumbing law and code and supervision have accomplished these facts may be offered:

Official plumbing supervision has helped to place Wisconsin in its present high position in matters of public health, our state ranking among the first in low death rate and long expectancy of life.

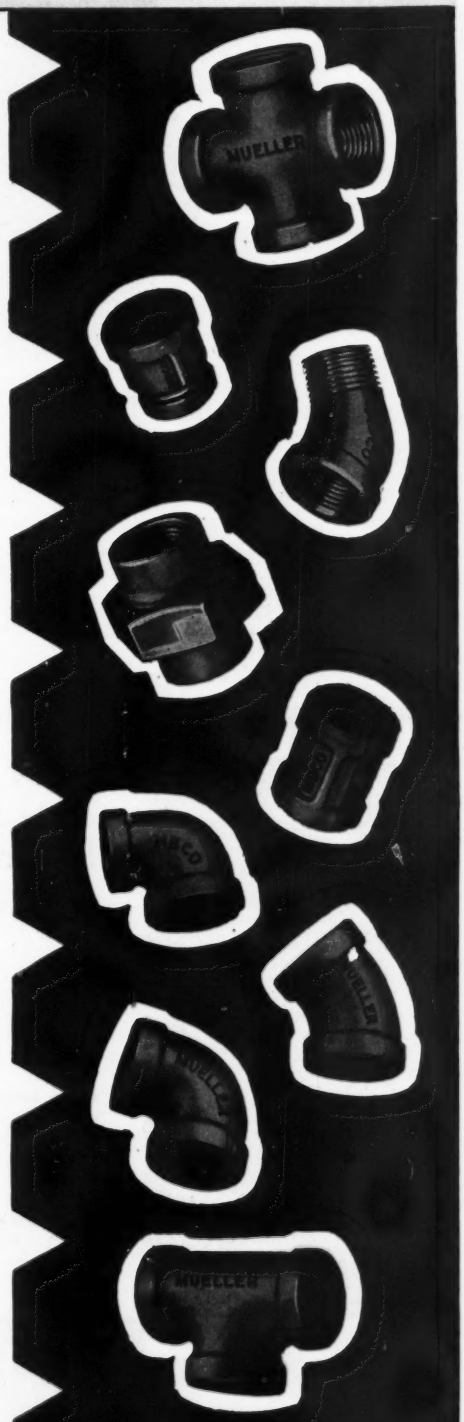
It has elevated plumbing standards through the enforcement of the state plumbing code and state and local supervision, and by the licensing of plumbers, making them responsible to the state and municipality for the manner in which they perform their work.

The law and supervision of plumbing have been the prime movements in our program of selecting and training plumbing apprentices by indenturing and compulsory vocational school attendance of 400 hours during the period of serving an apprenticeship, thus establishing from the outset a foundation for better qualified journeyman and master plumbers, which is of immeasurable value for efficient supervision of plumbing and related sanitation.

The licensing fees have made state supervision of

GENUINE MUELLER PIPE AND FITTINGS

DURABILITY— ECONOMY— AND EASY INSTALLATION



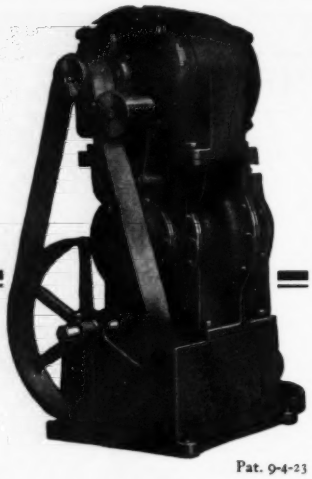
Genuine Mueller Brass Pipe Fittings are trademarked with the name "Mueller" or the letters "MBCO" for your protection.

When you insist on Mueller Brass Pipe Fittings, you assure yourself of quicker, better work, of absolute uniformity and of the highest possible quality brass content.

Responsibility for the proper working of both pipe and fittings is centered in one manufacturer whose reputation for best dealing has been firmly established throughout nearly three quarters of a century of service to the plumbing industry. Your jobber can supply you with Genuine Mueller Brass Pipe and Fittings. Use them together—all the time.

Mueller Brass Co.
PORT HURON · MICHIGAN
THREE GENERATIONS OF BRASS MAKING

GENUINE MUELLER PIPE AND FITTINGS

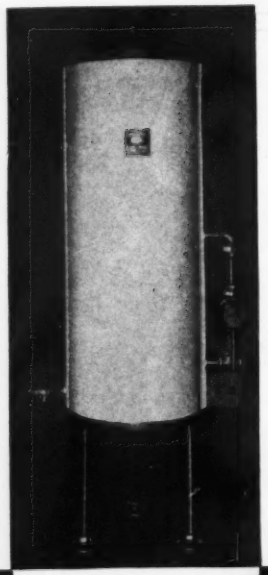


Pat. 9-4-23

The noisy, shaky, deep well problem is solved permanently when an ALAMO DORWARD ROTARY POWER HEAD is installed.

Ask us—or your jobber—how.

ALAMO ENGINE COMPANY
HILLSDALE MICHIGAN



"For Sale by the Plumbing Trade"

Appearing on our advertising means that a new type of heater has been added to your line.

Every home that has electric power without suitable gas supply is your prospect.

You have a new opportunity to increase your sales and profits.

There are models for every domestic need.

Write for further information.

-o-

D. D. WESSELS & SONS CO.
Detroit Mich.

plumbing self-sustaining and have enabled the department to take an active part in the disseminating of information through published bulletins and the supervision of matters relating to plumbing sanitation.

The law has made it possible for the state to assist local governing bodies in the formation of plumbing and sanitation ordinances and supervision. This has made state-wide uniformity and standardization practicable and successful.

It was the forerunner of our comprehensive laws and regulations governing public water supply and the treatment and disposal of sewage for the better protection of public health.

It has played an important part in bringing about our present state-wide program for the prevention, control and correction of stream pollution.

It was through the activities of the bureau of plumbing that we have a state-wide public comfort station code and other codes prescribing standards governing every type of toilet under a wide range of conditions.

Our recently enacted state-wide law and regulations governing lake and stream platting and sanitation came about as a result of the activities of this bureau, and enforcement has been placed with the bureau.

State supervision of plumbing has given Wisconsin a most far-reaching and definite plan to assist farm and rural dwellers with home comfort problems. This service extends to plumbing within the bulding, water supply systems, sewage disposal, etc., all such installations coming under the code and supervised by the state department.

Our method of procedure has obtained in a marked degree the co-operation of state and local officials, architects, engineers, and the plumbing industry, and the general public, an all-important factor for successful results.

I believe that a state code is more effective and practical and in the end more economical than a model ordinance in the form of recommended minimum requirements, whose adoption is optional with the municipality.

It is generally conceded that reasonable state control of plumbing through examination and licensing of plumbers to establish their competency, reinforced by the inspection of plumbing and related sanitation is a beneficial and necessary public health measure. I believe that a more effective program can be set up in this manner than by local supervision only, which uses the township, county, village or city as a unit. It is obvious that without some central point of control, uniformity cannot be obtained and the results in a public health way are of less successful accomplishment.

Sanitation, a term once familiar only to health departments, and sanitarians of our state, has become a by-word reaching out into all walks of life, rural and urban. It has become one of the cornerstones on which our prosperity and happiness rest.

◆

Everybody knows Lindbergh and what he did, but how many know the name of the man who designed his engine?

His name is Charles L. Lawrence.

When Lawrence was asked about his design of the engine that made Lindbergh's flight possible, he replied, "Who ever heard of Paul Revere's horse?"—*The Laboratory.*

THE TRADE

NEWS FOR PLUMBING AND HEATING CONTRACTORS

President Quinn Sends Greetings from Sickbed

John A. Quinn, president of the National Association of Master Plumbers, from his home where he has been confined for the past five weeks following a breakdown, extends holiday greetings and best wishes for a bright and prosperous New Year to association members and to all connected with the plumbing and heating industry. President Quinn is recovering as rapidly as could be expected but as yet is not allowed to receive visitors.

◆

Maine Convention Set for March

The Maine State Master Plumbers' Association will hold its annual convention on March 11 and 12, 1930, at the Falmouth hotel, Portland, Me., according to an announcement sent out by N. M. Knudsen, president of the association. Leon Blaisdell, Gardiner, is vice president of the Maine organization; Frank A. Heseltine, Pittsfield, treasurer, and J. E. Donovan, Winthrop, is secretary.

◆

National Convention Committee to Meet

A convention committee meeting of the National Association of Master Plumbers has been scheduled for January 3, 1930 at the Hotel Statler, Boston, Mass. Matters pertaining to the convention are to be discussed. The educational committee, of which C. W. Wanger is chairman, will go over the educational program which at the next convention is to cover even a broader array of merchandising and practical sales demonstrations than has yet been presented.

◆

Appoints Convention Committee

The Ohio State Association of Master Plumbers will hold its coming convention in Springfield, February 4, 5 and 6, 1930. President H. L. Crockett of the Springfield association has announced that the local convention committee will be composed of L. A. Fischer, chairman; Anthony Elinger, B. Follrath, John Krieg, John Kahiler, George Ridenour and H. L. Crockett. The master plumbers and the ladies' auxiliary of Springfield are doing commendable work towards the success of the convention.

◆

Minnesota Sets Convention Date

The Minnesota Retail Plumbers' Association has announced that its annual convention will be held on February 4 and 5, 1930, at St. Paul, Minn. A preliminary meeting of the presidents of local associations is tentatively planned for the evening of February 3.

◆

New Jersey Board of Directors Meets

The board of directors of the New Jersey State Association of Master Plumbers held a general business meeting on December 5, at the Walt Whitman hotel, Camden, N. J. Maney J. Feeney of Philadelphia, Pa., national association secretary, was present and expressed his re-

Window That Attracts Christmas Shoppers in Montclair, N. J.

THE accompanying photograph shows the handsome and well-balanced Christmas window display in the establishment of Jerre R. Blodgett at 31 Valley Road, Montclair, N. J. This is a good example of what may be done during the Christmas season to encourage the purchase of plumbing merchandise for gifts.

gret that President John A. Quinn was unable to attend on account of illness. The board instructed Secretary Feeney to arrange for a bouquet of flowers to be sent to President Quinn with the good wishes of the directors.

The meeting was attended by August C. Krieger, state president, Union City; Alex F. Berg, first vice president, Orange; Charles S. Loveman, second vice president, Neptune; James O. Lewis, third vice president, Newark; William G. Royer, fourth vice president, Trenton; William T. J. Orriss, secretary, Union City; George H. Werner, treasurer and national director, Orange; Charles Werner, Jersey City, and George L. Bird, Elizabeth, trustees; E. B. Moore, field secretary, Montclair; Ira H. Morris, executive secretary of the Newark association; William J. Wilson, former trustee, Lyndhurst; and F. A. Smith of New Brunswick.

◆

Richmond Association Elects Officers

The Master Plumbers' and Heating Association of Richmond, Va., held its annual election of officers on December 9 in the Builders' Exchange. Harry G. Longworth was re-elected president; H. B. Johnson was made vice president; C. G. Holyfield, secretary-treasurer; T. A. Talley, sergeant-at-arms, and H. A. Carter, E. G. Harris and W. G. Winter, trustees.

The officers will be installed at the regular meeting of the association on January 13, and a banquet will be held after the business session.

Organize Quantity Survey Bureau

In an announcement addressed to architects, consulting engineers, general contractors and owners, a group of Greater New York Master Plumbers tell of the formation of the Contracting Plumbers Quantity Survey Bureau, with offices at 420 Lexington avenue, New York City. The new bureau, inaugurated for the purpose of reducing estimating costs in plumbing work by eliminating the duplication of effort, is under the direction of Henry A. Gherardi. The bureau, with a staff of expert estimators, will confine itself entirely to the drawing off of materials from plans for those participating members who have been invited to bid on any specific job. No effort will be made to do engineering or cost finding work.

The expenses of operation are met by successful bidders who pay in one per cent of the amount of the bid in addition to an initiation fee which each firm participating pays.

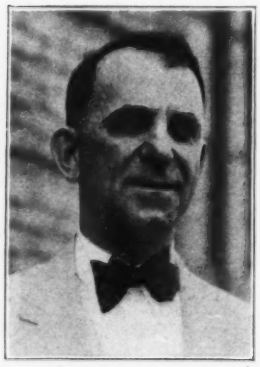
◆

Fort Wayne Society Elects Officers

The Society of Sanitary Engineers of Fort Wayne, Ind., held its annual election of officers on December 2. Arthur Ehrman was elected president; Louis Gollmer, vice president; Edward Oelschlaeger, recording secretary; and M. C. Connett, treasurer.

The new board of directors is composed of J. Henry Hipskind, O. C. Filler, Otto Leykauf, Anton Haberstock and Albert Rolf, Jr.; and the arbitration

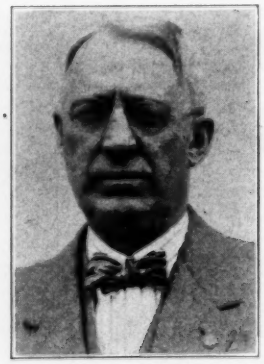
Members of the Plumbing and Heating Industries Committee, N. A. M. P.



Jere Sheehan, Jr.

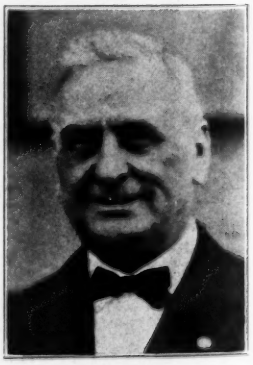
John A. Quinn

George H. Drake



A. C. Eynon

F. B. Lasette



E. D. Hornbrook

committee includes F. Hipskind, Edward Oelschlaeger, Harry Hattersley, Harry Beck and P. B. Arnold.

The various committees will be appointed before the regular January meeting, President Ehrman announced.

◆

A Message from President Quinn

You have already received a communication from the Plumbing and Heating Industries Bureau, calling attention to the Presidents' and Secretaries' Conference to be held at the Congress hotel, Chicago, Ill., January 13, 14 and 15, 1930.

It is hardly necessary to impress upon you the importance of attending this conference, as those who were present last year fully realize the value of these meetings and the benefits derived from the many constructive ideas presented at each session.

In addition, it gives you an opportunity to discuss your problems with the representatives of the state and local associations from various sections of the country and to learn what the "other fellow" is doing in his locality for the upbuilding of our industry.

It is your duty to be in attendance and lend your aid in making this conference more successful, if possible, than any held in the past.

An interesting program is being prepared with addresses by men prominent in the industry and in business affairs.

This is your conference, not a conference of the Plumbing and Heating Industries Bureau nor of the national association.

I, therefore, urge every president and secretary to arrange his affairs so as to be present at this conference in Chicago.

◆

Illinois Convention to be Held at Rockford

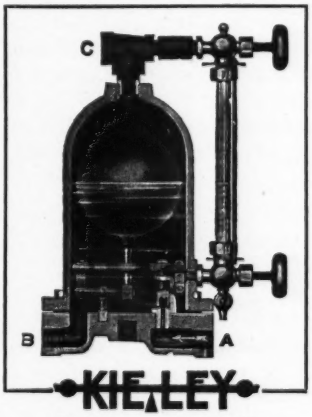
The Illinois Master Plumbers' Association will hold its annual convention on January 21, 22 and 23, 1930, at Rockford, with convention headquarters at the Hotel Faust.

Henry L. Strenger of Lake Forest, is president of the Illinois state association; Melvin L. McKay, Rock Island, first vice president; F. R. Bailey, Rockford, second vice president; Clarence A. Bolton, Chicago Heights, secretary; and David E. Grieg of Springfield, is the treasurer.

Henry Strenger

C. A. Bolton

KIELEY FIG. 800
WATER FEEDER
FOR LOW PRESSURE BOILERS



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Send for our new 226 page catalogue showing a complete line of specialties with diagrams for installation.

Why not secure the utmost protection for your customer by installing a Kieley 800 Feeder. Amply proportioned it will safely guard the water line and protect not only the customer but the contractor.

Advise a Feeder before trouble and be safe.

KIELEY & MUELLER, Inc.
34 WEST 13TH ST. • NEW YORK CITY

VALVES · AND · FITTINGS

78 years of Service to Industry

As the passing of 1929 marks another milestone in the long history of the Jarecki organization; as "77 years of service" becomes "78 years of service"—may we not take this occasion to express our wishes for 78 years of progress and prosperity for you?

[Established 1852]
Jarecki
Jarecki Manufacturing Company
Erie, Penna., U. S. A.

P. & H. League to Hold Educational Meetings

At a meeting of the board of directors of the Plumbing & Heating Development League of Philadelphia, Pa., on December 9, the resignation of John A. Hartman, campaign manager for the league, was passed upon and accepted. The league proposes to deal, in 1930, primarily with the problem of educational work among the master plumbers and salesmen. Educational meetings will be held every other Friday evening, and the fundamental problems of business and merchandising will be discussed and taught.

Howard S. Thrasher, at present business administrator for the development league, will be retained as secretary manager.

◆

South Dakota Changes Convention Dates

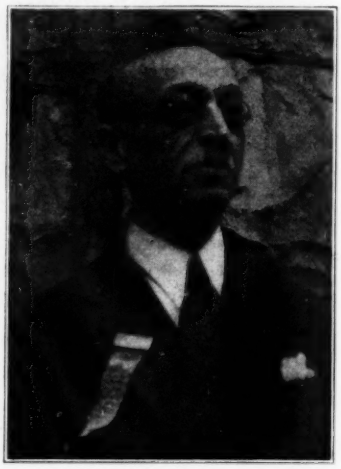
The South Dakota Retail Plumbers Association has just announced a change in the dates for its 1930 convention, which is to be held at Rapid City. The new dates for the convention are January 15 and 16. It was originally planned to hold the meetings on January 14 and 15.

A special effort will be made at this year's convention to formulate plans for bringing a state plumbing code before the state legislature and present plans call for considerable time being devoted to this subject at the convention.

Herman Hélstrom of Minneapolis, Minn.; Fred A. Beier, national director, St. Paul, Minn., and Jamie Herron, nationally known lecturer, will address the gathering.

Wisconsin Convention to be Held at Milwaukee

The Wisconsin Master Plumbers' Association will hold its next annual convention at the Schroeder hotel, Milwaukee, on January 14, 15 and 16, 1930.



L. R. Friend

The official body of the Wisconsin association is composed as follows:

L. R. Friend of Milwaukee, president; John McCoy, Fond du Lac, first vice president; Jacob Zimmerman, Kenosha, second vice president; Charles Pelunek and Emil F. Henoch, both of Milwaukee, secretary and treasurer, respectively.

◆

Elect Association Officers

The Master Plumbers' Association of Somerville, Bound Brook and Raritan, N. J., recently elected the following officers for the ensuing year: R. J. Southwick of Somerville, president; W. P. Zepp, Bound Brook, secretary; and Louis H. Elling, Somerville, treasurer.

PHOENIX
BRASS FITTINGS

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ACKNOWLEDGED
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IRVINGTON :: N. J.

New Association is Formed in Monroe, Louisiana

The Master Plumbers' Association of Monroe, La., a newly formed organization, at a recent meeting elected Frank McClellan as its first president. Mr. McClellan is well known in the plumbing and heating industry of the South. He will be assisted in his official duties by J. D. Butler, vice president, and C. V. Teegerstrom, secretary-treasurer.

C. A. Hunter, president of the Louisiana-Mississippi Association of Plumbing and Heating Dealers, was present at the meeting, and gave his official sanction to the formation of the new association.

◆

Holds Annual Election

The Range Master Plumbers' Association held its annual election of officers on Monday evening, December 9, at Eveleth, Minn. Andrew F. Cherne, of Eveleth, was elected president; William E. Heisel, Virginia, vice president; and Henry C. Hanson, also of Virginia, secretary and treasurer.

After the meeting a buffet luncheon was served and it was decided to hold the next meeting at Hibbing, about the middle of January.

◆

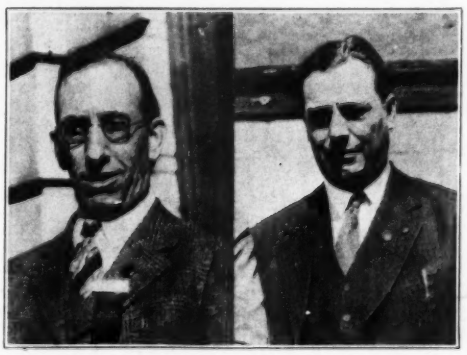
St. Louis Association Elects Officers

The St. Louis Association of Master Plumbers elected its officers for the 1930 season at the association's last regular meeting. Edward Monteath was elected president; F. J. Timmermann, first vice president; Bernard Braun, second vice president; Charles Burgess, treasurer; Joseph Knoll, recording secretary; August A. Meyer, financial secretary; and Walter J. Weidemann, sergeant at arms.

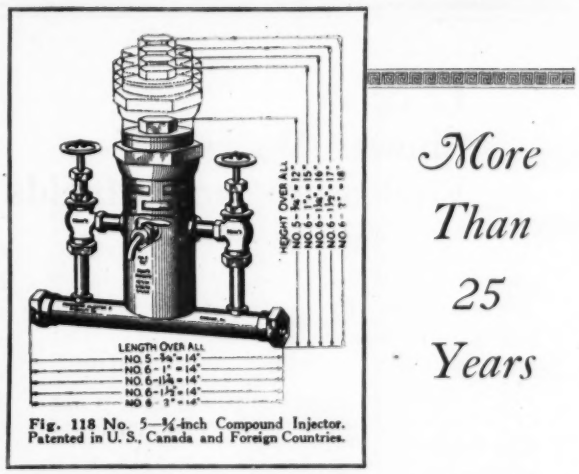
Edward Monteath

George Eichenlaub, E. F. Schuster and L. P. Armbruster were elected as auditors; and Franklin Kuhns, E. E. Manahan and H. F. Ryffel were chosen as trustees.

The installation of officers will take place sometime during the month of January at a stag dinner.



E. J. Blake and F. V. Timmerman



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More Than 25 Years

Removal of all foreign and dangerous substances from water has long been the aim of the makers of Dehn Automatic Water Softeners.

For more than 25 years, Dehn has been providing *safe* water. The Dehn Automatic Water Softener will keep your customers satisfied and pay you a real profit.

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THE QUALITY GOODS

Final Arrangements Made for Conference of Presidents and Secretaries, to be Held in Chicago in January

Secretaries and presidents of local, state and national associations of master plumbers' and associations of heating and piping contractors will meet at the Congress hotel, Chicago, on Monday, January 13, for the eighth annual three-day conference of association officials under the auspices of the Plumbing and Heating Industries Bureau.

The program will start at 10 o'clock in the morning with greetings from the presidents of the two national associations—President John A. Quinn of the National Association of Master Plumbers and President Walter Klie of the Heating and Piping Contractors National Association.

The conference will then adjourn in order to give the secretaries and presidents of the heating associations an opportunity to meet under the chairmanship of President Klie and the secretaries and presidents of associations of master plumbers an opportunity to meet with President Quinn.

While the two groups of secretaries will meet separately all day Monday, the joint sessions will again be resumed on Tuesday morning when the association manual will be discussed.

Tuesday afternoon every secretary will be called upon to state some of the problems which have been confronting him during the year. This statement of problems is expected to develop a number of important topics which will be assigned to those delegates present who are best qualified to discuss them at the session on the following day.

The only outside speaker at the conference will be M. P. Ackerman of the United States Daily who will talk on "The Relationship Between the Federal Trade Commission and National Trade Associations." Mr. Ackerman has been limited to 20 minutes in order that there may be the maximum amount of time for the discussion of association problems.

A brief period on the last afternoon of the conference has been reserved for a discussion of the Plumbing and Heating Industries Bureau and its relation to the industry.

If the delegates would like to have a banquet, arrangements may be made for this affair to be held on Tuesday evening, January 14.

There will be no registration fee this year. A block of rooms at the rate of $4 single and $6 double, and up, has been reserved at the Congress hotel. Since the number of rooms in this block is limited, delegates are urged to make immediate reservations.

◆

Boston Associations Consider Trade Practices

The Heating and Piping Contractors Boston Association, Inc., Boston, Mass., has gone on record as favoring the elimination of the practice of the shopping of bids between general contractors and heating contractors and between the latter and sub-contractors.

Conferences have recently been held by the trade practice committee of the association, consisting of Maurice E. Chase, H. E. Whitten and R. B. Crocker,

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Shower Doors Enclosures and Shields

A greater beauty and utility are achieved in the bathroom equipped with ***C&S*** Shower Doors, Enclosures or Shields.

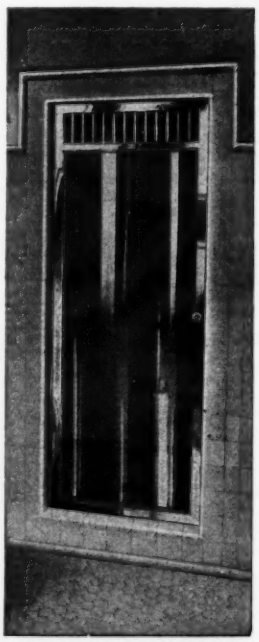
C&S meets all the demands for the final touch of smartness in the bathroom and they make possible a new achievement in cleanliness and sanitation.

Write at once for this new *C & S* catalog. It will help you with sales.

Tile and decorated walls are protected from water marks, bathrooms are relieved of unsightly shower protectors.

C & S Shower Doors, Enclosures and Shields are available through your jobber. They are furnished in Chromium Plate, Nickel Silver or Nickel Plate.

They are heavy, strong and durable, made to meet the most exacting demands in every detail.



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Pittsburgh, Penna.

with similar committees from the Sheet Metal Contractors Association and the Asbestos Board of Trade. In each case the committee went on record as favoring the naming of the sub-bidder in bids made by the heating contractor to the owner, architect or general contractor. It further confirmed the principle that the contract should be awarded to the sub-bidder named at that bidder's original price and also pledged itself to aid in the awarding of sub-contracts as soon after the receipt of the heating contract as is possible.

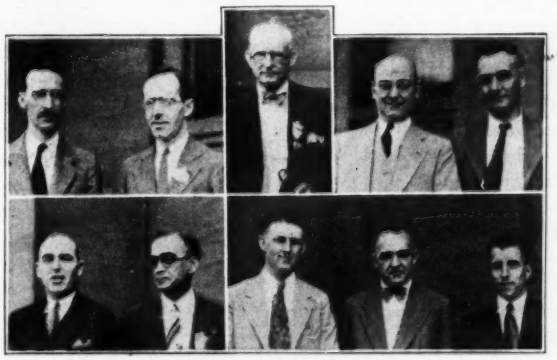
The association has also taken official cognizance of the work of the committee on contractual relations of the Philadelphia Building Congress. This committee has worked out the general premise that a formal proposal requiring the bidder to give the names of sub-contractors whose estimate he has used should be insisted upon. The Boston association in a letter to Paul Davis, chairman of the Philadelphia committee, endorsed this idea, and many individual members of the Boston association have also assisted the Philadelphia group by their comments.

◆

Bronx Masters Hold Large Mass Meeting

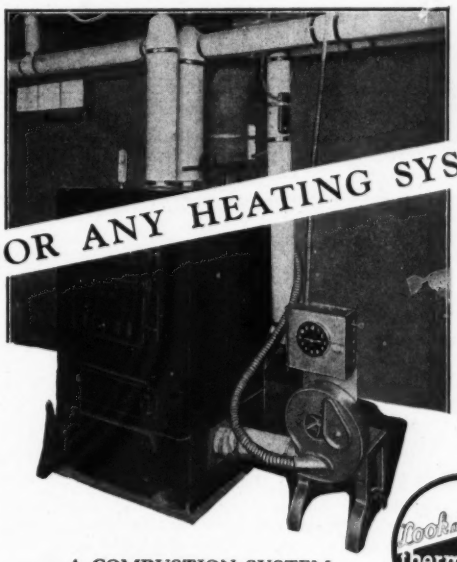
The Master Plumbers' Association of the Bronx, New York City, held a mass meeting at the Masonic Temple on December 10, attended by some 400 plumbing contractors, members and non-members. The meeting was called by Harry Sugarman, president of the association, to discuss problems confronting the industry which, he feels, can largely be eliminated by strengthening the organization's membership and enlarging its scope of activities. Joseph A. Maynard, president of the Eastern Supply Association, Charles J. Crockett, merchandising counselor, William J. Flynn, commissioner of pubic works in the Bronx and past president of the New York state association, along with President Sugarman, were the principal speakers of the evening.

In calling the meeting to order Mr. Sugarman said: "The members of this organization have been dormant in so far as getting new members is concerned and the time has come to show all master plumbers the benefits that are to be derived through membership affiliation." In calling attention to the fact that there are about 438 mas-



Top row: E. P. Best and G. B. Cushing, both of A. M. Byers Co., Pittsburgh, Pa.; R. G. Thomas, National Director, San Antonio, Tex.; L. W. White and George L. Grove, both of Brunswick-Balke-Collender Co., Chicago. Bottom row: J. T. Connelly of Kennedy Valve Co., Elmira, N. Y.; F. H. Rinehart of New York City; C. A. Johnson, general manager, and W. A. Amthor, both of Excel Metal Cabinet Co., Jamestown, N. Y.; F. C. Coffage of Leonard-Rooke Co., Providence, R. I. Photos taken at Buffalo convention, N. A. M. P.

THERMOLATOR



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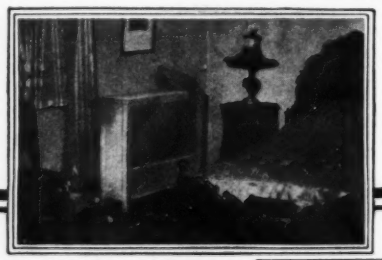

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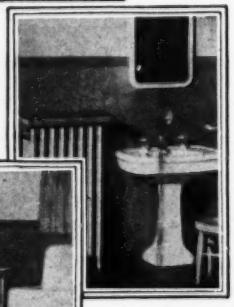

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ter plumbers in that borough available for membership, he enumerated some of the problems that are confronting the industry, such as men doing work who are unlicensed and mail order houses selling directly to the public. "To present a formidable front that will not only retain for us the business that is rightfully ours but will protect the health of the public by the proper installation of plumbing materials," he said, "we must strengthen our organization, employ a field man and establish an office from which these problems can be handled."

President Sugarman in speaking later on merchandising said, "I have overhauled my business, established a modern show room from which I am doing enough selling of materials to make the extra expense worth while." Further, in connection with the show room, he said, "A year ago I bought a Christmas package from a jobber which contained colored bathroom accessories and without any thought put its contents in the window among a lot of valves and dirt; a few days later a woman came in and bought it for cash." "This little incident," he continued, "set me to thinking, here I have a profit of three or four dollars, more than I would make by sending a man out to do a small repair job and I didn't have to wait from thirty to sixty days for my money." "A number of things," he concluded, "have occurred since my show windows and store have been modernized to reward me for my expense and effort."

Joseph A. Maynard, president of the Eastern Supply Association, and president of the Boston Brass Co., came down from his plant in Waltham, Mass., to talk before the meeting on organization. In this connection, after enumerating the three branches of the industry, he said, "Each is dependent on the other and if each doesn't cooperate with the other and if individuals do not become attached to and work with their respective associations, they are, because of business conditions, doomed to failure." "Appreciating these conditions," he continued, "the government called a conference of representatives of wholesalers and manufacturers which culminated in the establishment of trade practice rules which are to be enforced by the newly organized National Plumbing and Heating Institute." He further said, "The master plumbers in a body will soon have to request similar assistance from the government in order to render a more adequate service to the public and enjoy more prosperous business." Mr. Maynard, besides talking on credit carelessness, the disregard many contractors have for overhead and the need for a credit bureau, touched on the recent business conference in Washington that President Hoover called for the purpose of aiding business in 1930. After stating that members of the Eastern Supply and all other associations believe unreservedly that all plumbing goods should be sold only through the plumbing and heating contractor, the speaker urged his hearers to make a determined effort toward increasing their business through home modernization work at prices that are profitable. He concluded by appealing to the master plumbers to indicate their confidence in the industry by joining the association.

Charles J. Crockett, who advises plumbing and heating contractors in the promotion of merchandising effort, suggested to the association membership a program for 1930 which included the engaging of a counselor to pro-

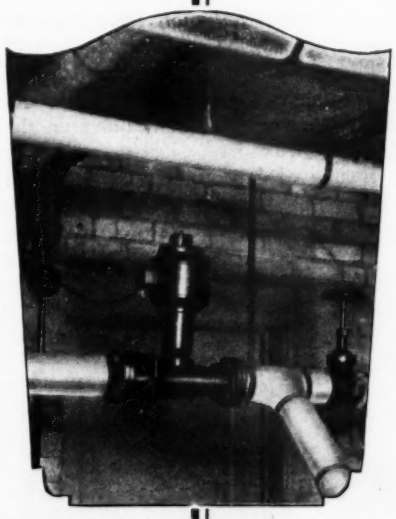
tect their interests as well as those of the public; the inauguration of a collection department; a drive against unlicensed plumbers; affiliation with the Better Business Bureau for building public confidence; the keeping of politics out of the association; the attending of meetings; a decision to either make a profit or pass up jobs; advertising and the placing of association affairs in the hands of eight or ten members. Another point stressed was the need, because of the decline in new construction, of selling new bathrooms, heating plants and piping systems to apartment house owners.

The Honorable William J. Flynn, commissioner of public works in the Bronx and past president of the New York State Master Plumbers' Association, after reviewing the history of the national body, described many instances where the local organizations brought about major improvements in the plumbing laws. This service, he continued, can be best carried on through an organization the roster of which carries the names of a large majority of those in business. In discussing further the benefits of organization, he recounted the efforts of the master plumbers' association in framing the first New York plumbing code which has been developed to a point where it permits that city to enjoy the finest health rate in the country.

A dramatic touch was given the proceedings when President Sugarman said, "I want every non-member who will join this organization tonight to stand up." The result was that about fifty applications were made.

A resolution was passed instructing the secretary, S. George Arnone, to extend to former State President S. H. Welch and his family the best wishes of the association for his speedy recovery from his serious illness.

Top picture: H. F. Roller of Macon, Mrs. and Mr. B. C. Brunson of Augusta, Mrs. and Mr. W. R. Puckett of Atlanta, Mr. and Mrs. Benjamin Bontenreiter of Atlanta. Bottom picture, back row: J. C. Hall and S. M. Cummings, both of Pierce, Butler & Pierce Mfg. Corp., Savannah; O. H. Kelly, Standard Sanitary Mfg. Co.; J. J. Kennedy, 2d, National Tube Co.; E. F. Pfarr and W. A. Kelly, both of Mott Southern Co.; D. F. Stevenson, American Radiator Co., Atlanta; P. L. Guest, Jr., Hoffman Specialty Co. Front row: A. P. Keisker and C. W. Anchors, both of Crane Co., Savannah; C. J. McCubbin, Walker Supply Co.; R. J. Welsh, Sloan Valve Co.; H. S. Stow, Noland Co., Atlanta; W. T. Turlington, Crane Co., Macon. Photos taken at the Convention of the Georgia State Association of Master Plumbers



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Utah Holds Semi-Annual Convention

THE Utah State Association of Sanitary and Heating Engineers held its semi-annual convention at Salt Lake City on December 11, with a good representation from both branches of the industry present. President Ambrose H. Higham of Salt Lake City, presided at the sessions.

"The master plumber should be looked up to as a leader of the building crafts," declared Parley G. James, president of the Salt Lake City Association of Sanitary and Heating Engineers, in his welcoming address. "The master plumber," he continued, "in order to become a leader in the commercial world, must conduct his business on a high plane and be in every sense a business man and not merely an overalled mechanic. The master who presents the general appearance of a day laborer, can hardly expect the public to consider him the equal of merchants in other lines, with their well kept places of business.

A. H. Higham, president, and Charles M. Swinnerton, national director

"A person may often become discouraged and wonder if an association is actually accomplishing anything and whether or not it is more or less a waste of money. However, during the quarter of a century that I have been a contracting plumber and been through varying periods of association activity and lack of it, it has been my experience that conditions are always better when an association exists. The opportunity that it provides for education, for better fellowship and feeling, for combating trade evils and the promotion of public relations, cannot be overlooked."

Leo S. Holbrook of Bountiful responded to Mr. James' address. He declared that he was thoroughly in accord with the expression of Theodore Roosevelt that every man owes part of his time to the upbuilding of the profession to which he belongs, and that the masters in the smaller communities were more than willing to do their part in promoting association activity.

The activities and duties of the National Association of Master Plumbers were briefly outlined at the morning session by Charles M. Swinnerton, national director of Los Angeles, Calif.

"It is not the duty of the National Association to organize state and local associations, but to promote movements that have a national bearing and are for the benefit of the industry as a whole. However, the officers and representatives of the National are glad to help promote the smaller units whenever it is reasonably possible for them to do so.

"The members of the local and state associations must be willing to donate a portion of their time and effort, if their association is going to be a success. Instead of adopting the slogan of 'let George do it' as so many members do, they should change their slogan to 'what can I do for the organization?' A successful association is largely a matter of intelligent hard work."

George W. Bruerton, a member of the board of governers of the Salt Lake City association, suggested a series of letters followed by personal calls on the masters who do not belong to the association. Continual contact with prospects is necessary for success, he said.

Mr. Swinnerton outlined the mode of procedure in securing new members as follows: first, a series of letters giving the advantage of organization and preparing the ground generally for personal calls. Second, repeated personal calls. "Correspondence alone will not secure new members," he said. "While it may put the man in a frame of mind that he is willing to join, it generally will not induce him to sign an application blank and send in his check for the initiation fee. For example, how much insurance do you think would be sold if the insurance agent only wrote letters. In Los Angeles, we have adopted the method of zoning the city and making certain members responsible for calling on the selected non-members in their zone."

Delegates from outside of Salt Lake City discussed conditions in their territory. Among these speakers were Milton Bachman, Ogden; E. O. Moe and A. E. Buckley,

Peter P. Erskine of Salt Lake City, C. M. Peterson of Farmington and George M. Whitely of Salt Lake City

Provo; Leo Holbrook, Bountiful; A. H. Palmer, Logan and C. M. Peterson, Farmington.

A luncheon was held at the Newhouse hotel at which Mr. Higham presided. The speakers were Heber Aldous, assistant manager of the Salt Lake City branch of Crane Co.; George F. Knight, assistant manager of the local branch of N. O. Nelson Mfg. Co., and Clarence Nelson, manager of the Peerless-Utah Co.

National Director Swinnerton Talks

FOLLOWING the luncheon, the convention reconvened at 2 p. m. A financial report showing a nice balance in the treasury was read and accepted. Mr. Swinnerton was the principal speaker at the afternoon session, discussing the benefits derived from the National

Leo Holbrook of Bountiful, William C. Grant of Salt Lake City, and A. E. Buckley of Provo

Association, the trend of the industry, the trade practice rules and general factors of success.

"That the plumbing industry has advanced to its present position is largely due to the work of the National association, assisted by the state and local organizations," he said. "The theory upon which association work is founded is that two heads are better than one. It is for this reason that you consult with someone in whom you have confidence when you have a problem to solve and you are willing to rely entirely upon your own unsupported opinion. Our government was formed under the same theory, namely, by a body of men, not by one and the constitution was written and adopted in the same manner.

"The National has been largely responsible for the development of the industry from that of journeyman masters to merchant plumbers. The basis of practically all of our trouble has been lack of business education. The large majority of us knew only the mechanical phase when we started out as masters. We knew nothing about costs and when someone told us that ten per cent on fixtures gave us a good margin of profit we believed them and we inferred from that that ten per cent on our labor would likewise give us a good margin of profit. And all this was despite the fact that our overhead was running from fifteen to twenty-five per cent, although frequently we didn't know that our overhead was amounting to so much.

"The master must know his costs and he must cover them and add a profit on all work that he takes, if he expects to make a success in the plumbing business. The theory that a large volume of business will necessarily

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mean a nice profit, is absurd. I know contracting plumbers who one day had fifty men working for them and a week later were broke and carrying a kit on their shoulder for somebody else. Less work and more profit should be the slogan.

"The master plumber has always been ahead of actual conditions in the trade as far as the technical end is concerned. When buildings are built twice as high as they are today, the master plumber will be ready to efficiently install the sanitary and heating equipment.

"We must build for the future. Success lies in the application of business principles. First of all belong to your association. Then have self respect. You cannot get others to respect you unless you respect yourself. Go after the preferred, non-competitive work. There is no honor in doing big work for nothing just to say that you did a certain building. Be a business man."

Mr. Swinnerton was given a rising vote of thanks, his talk being enthusiastically received. Following a round table discussion of general conditions, the meeting was adjourned.

The by-laws of the association call for the holding of the first meeting of the new year on the second Tuesday of March. At that time the election of officers for 1930 and the selection of a delegate to the National convention will be held. The officers who have served through the past year are: Ambrose H. Higham, president; Alex Mortensen, vice president; Ross Dudley, secretary; Joseph F. Carthey, treasurer.

◆

Westchester Masters Elect Officers

The members of the Master Plumbers' Association of Westchester County, N. Y., had as guest speakers at their monthly dinner meeting held in Cragg's restaurant, Mt. Vernon, N. Y., on December 19, M. E. Durkee, who is in charge of the certified heating department of the Heating and Piping Contractors New York City Association, and R. M. Bentley, field representative of the Heating and Piping Contractors New York State Association.

Mr. Durkee in his talk explained that one of his chief interests lies in educating the public to the value of certified heating and in this effort he is mailing out hundreds of circulars in which the story is told. Some of these brochures, he continued, have gone to building interests and home owners in Westchester county, not, he further explained, with any idea of having New York City contractors invade that territory but more to emphasize the practicability of certified heating by having it discussed and its need brought more forcibly to the attention of heating contractors. The speaker, after an outline of the operating details of this method, said that he would like to organize the members either as a separate group or as an affiliation with the New York City association. In conclusion Mr. Durkee asked that the names of heating contractors be sent in to his office so that literature on the subject could be forwarded.

Mr. Bentley spoke briefly on the progress in organization work that has been made throughout the state.

With Adam Berle, president of the association, presiding, the following officers were elected: Charles Ryan, president; T. A. Nolan, first vice president; Harry Singer, second vice president; Arthur Fuchs, third vice

president; J. J. Lynch, treasurer; John Schessler, recording secretary; W. J. Buehler, financial secretary, and John Philip, sergeant at arms. In addition Mr. Berle, F. H. Bell, A. H. Karl, Charles McCord and Richard Holzer were made trustees.

The meeting followed a dinner at which bear steaks were served—a part of the black bear shot by Andrew I. Green of the Manhattan association during a hunting trip with E. J. Sheppard, field representative of the Westchester organization, and Al Beyrodt of the Bronx association. The expedition, which took the hunters to Caratunk, Maine, netted, in addition to the bear, one deer each.

◆

Philadelphia Masters War on Illegal Trade Practice

The Philadelphia Master Plumbers' Association has made great inroads against plumbers operating illegally, by causing 679 to be convicted and sentenced out of 928 arrests. Among these were 39 holding master plumbers' licenses who had their certificates revoked. M. J. Feeney, president of the association and secretary of the national body, who inaugurated a sanitary committee to combat the improper installation of plumbing, has been indefatigable in his efforts to convict offenders. Judge Roberts, before whom these cases are tried, has stated that, in his opinion, there are too many handy men without full knowledge of what they are doing, throughout the country, attempting to perform the sanitary work of master plumbers. Judge Roberts, who is a master plumber, deals severely with each of those convicted.

California Convention Arrangements Are Being Made

C. R. Hutton of Los Angeles, Calif., secretary of the State Association of Master Plumbers of California, returned recently from two months spent in the northern portion of the state and reports preliminary arrangements for the 1930 state convention well under way. The dates selected by the executive committee are May 12-16, with headquarters at the Senator hotel, Sacramento. J. B. Hawley, one of the state directors and chairman of the committee in charge of convention arrangements, has the program both for business and entertainment well in hand and predicts one of the best conventions in the history of the State Association of Master Plumbers of California.

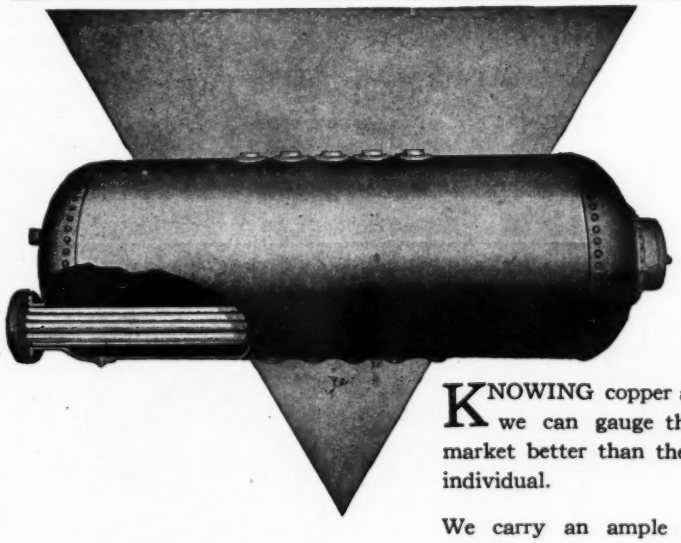
M. J. Orr

◆

Iowa Sets Convention Date

The Iowa Master Plumbers' Association has arranged to hold its next annual convention on January 28 and 29, at Sioux City, Iowa, according to an announcement by M. J. Orr, president of the state association.

At a recent meeting of the officers of the association good progress was made in arranging the program.



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Association Elects Officers

The North Shore Plumbing & Heating Contractors' Association of Evanston, Ill., recently elected its officers for the 1930 season. Alfred J. Chester was elected president; Howard G. Moore, vice president; Harry L. Hagen, secretary, and George S. Moore, treasurer.

◆

Fairfield County Association Appoints Business Representative

The members of the Fairfield County, Conn., Master Plumbers' Association, at a recent meeting, engaged B. Joseph O'Donnell to act as business representative of the organization. Mr. O'Donnell, who for a number of years was associated with the Plumbing and Heating Industries Bureau, will assume his new responsibility on January 1, 1930, and will make his headquarters at 680 Main street, Stamford, Conn.

◆

Bronx Masters Plan Party

The Master Plumbers' Association, Bronx, New York City, has planned its annual beefsteak party for January 25, 1930, at Ebling's Casino, in that borough. Fred Schmalstich and George Arnone are making the preparations, which include dancing and entertainment.

◆

Elects Association Officers

The members of Division 2 of the Manhattan Master Plumbers' Association, New York City, at a meeting on December 10, elected Richard Anderson, chairman; J. D. Cooley, vice chairman; A. A. Duguid, secretary; T. J. Cummings, treasurer, and Philip Eich, sergeant-at-arms. The retiring chairman, Thomas J. Dorsey, and T. P. McLoughlin were selected to serve on the board of governors.

◆

Elect Officers for 1930

The Merchant Plumbers' Association of Whittier, Calif., has recently elected its officers for the 1930 season. T. J. Horn was elected president; W. A. Williams, vice president; H. J. Holcomb, secretary, and L. R. Davis, treasurer.

◆

Westchester County Masters Plan Ladies' Night

The Master Plumbers' Association of Westchester County, N. Y., has planned its annual Ladies' Night for January 23, 1930, at Lawrence Inn, Mamaroneck, N. Y.

◆

William B. Latey

William B. Latey, assistant plumbing inspector of Salt Lake City, Utah, died recently in that city. Mr. Latey had served as plumbing inspector in Salt Lake City for the past ten years, having previously been a journeyman plumber. The plumbing and heating industry was well represented at the funeral.

◆

J. C. Kallaher

J. C. Kallaher, long engaged in the plumbing and heating business in Memphis, Tenn., and a member of the Memphis Master Plumbers' Association, died in his 55th year, Sunday morning, December 8. Mr. Kallaher is survived by his widow, a daughter, a son and a brother.

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N.A.M.P. Convention Plans Progressing Rapidly

IN CONNECTION with the arrangements for the convention and exposition of the forty-eighth annual gathering of the National Association of Master Plumbers in Boston, Mass., next June, the convention and exposition committee, of which P. W. Donoghue is chairman, is holding numerous meetings to work out the many details. Recent action by the committee includes the election of James G. Gillespie as vice chairman.

The committee has opened executive offices at 328 Nottingham building, 25 Huntington avenue, Boston, and the task of arranging for the convention together with the exposition and the Women's Auxiliary convention, has already been inaugurated.

Jas. G. Gillespie

At a meeting of the Boston members of the committee on December 9, Chairman Donoghue was authorized to appoint sub-committees for the purpose of handling exhibits, program and hotels. He announced that the chairman of the sub-committee on exhibits will be Andrew F. Curtin of Medford, a member of the Association of Master Plumbers of Boston and Vicinity, and for many years a tireless worker in behalf of the local and national association. Mr. Curtin has had previous experience along these lines, having been at the head of the local committee in charge of the twenty-sixth annual convention of the national association, held in Boston twenty-one years ago last July. The other members of Mr. Curtin's committee, and the personnel of the other sub-committees authorized, will be announced by Mr. Donoghue in the near future.

The preparation of the floor plan and other specific data for the use of manufacturers in connection with the exhibit of plumbing, heating and allied products, to be held at Mechanics' building on Huntington avenue, during the national convention, will be one of the first activities of Mr. Donoghue and his committee associates.

The exposition will open Monday, June 23, and will close Thursday, June 26. The convention will open Tuesday, June 24 and close Thursday, June 26.

A prominent feature of both the convention and exposition will be the program of the special educational committee, headed by C. W. Wanger of the Woodward-Wanger Co., Philadelphia, Pa. Although appointed chairman of this committee only the latter part of October, Mr. Wanger has already formulated, tentatively, an interesting and instructive program. He was in conference with Chairman Donoghue at the Boston office a short while ago, at which time the educational committee plans were gone over in a preliminary way.

"The keen interest being shown at this early date in both the convention and exposition is very gratifying," said Chairman Donoghue recently. "Not only has our committee already received applications for hotel reservations from master plumbers expecting to attend the Boston meetings, but we have had a number of requests from manufacturers, especially throughout New England, for an opportunity to select exhibit space in the exposition. The master plumbers of this city and state and, in fact, throughout all the New England states, are very deeply interested in making the Boston convention and exposition an outstanding success. Their offers of co-operation with our committee are truly inspiring. We feel confident that the participation by master plumbers and manufacturers in the Boston gathering will establish a record in the history of the National

association, and you may be sure that every effort will be made by our committee to see that both convention and exposition are not only the largest, but also the most valuable to those participating."

Preliminary plans are already under consideration by the Boston members of the committee and, as soon as various suggestions and ideas have been crystalized, a meeting of the national committee will be called early in the coming year to pass upon the recommendations of the Boston group. It is very probable that this committee meeting will be held Friday, January 3, at 12 o'clock noon at the Hotel Statler, Boston. Shortly thereafter, the exposition prospectus, which will include the floor plan and other details, will be placed in the hands of manufacturers throughout the United States, affiliated with the industry, for the selection of their exhibit space.

Tentative plans in connection with the convention and exposition provide for the utilization of something like 85,000 square feet of floor space in the Mechanics' building, about 50,000 square feet of which will be used for exhibit purposes, and the balance for convention and catering facilities. It is expected that every master plumber who attends the convention meetings in Grand Hall of the Mechanics' building will pass through the exposition hall of the same building, both going to and coming from the meetings. Not only are the convention and exposition held under one roof, which is a very desirable feature from both the manufacturer's and master plumber's points of view, but the halls will be arranged so that the main entrance will be to the exposition hall, which in turn will open into the convention hall.

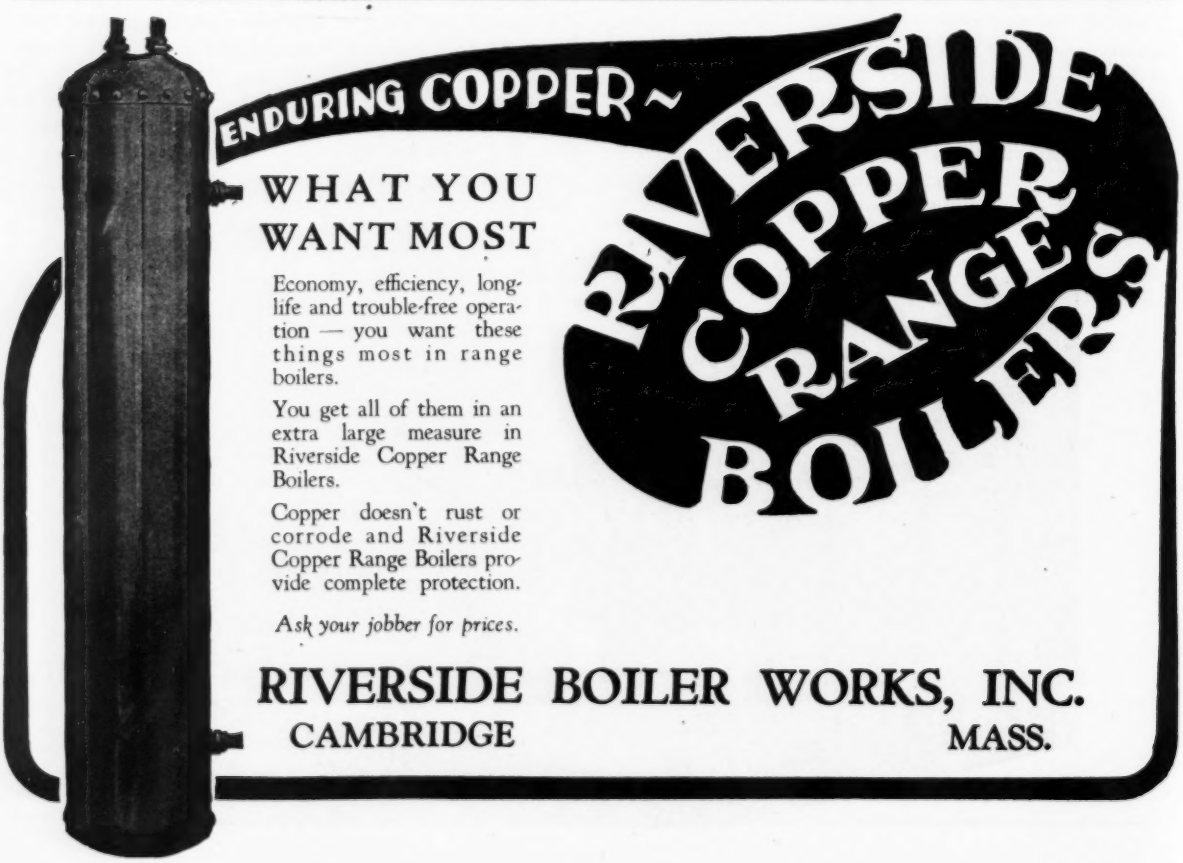
It is probable that both areas of the exposition hall, which covers about 40,000 square feet on the ground floor and about 10,000 square feet in the balcony, will be used for exhibit booths, the balcony being especially adapted to manufacturers of fittings and smaller parts. There will be approximately 135 booths on the main floor and some 35 or 40 booths in the balcony. This is a larger number of exhibit spaces than usually available at plumbers' expositions and the indications are that, because of this fact, the rate per square foot will possibly be lower than in recent years.

◆

Michigan A. S. H. V. E. Holds December Meeting

The Michigan Chapter of the American Society of Heating & Ventilating Engineers held its December meeting at the Cadillac Athletic club, Detroit, with an attendance of seventy-three members and guests.

After a short address by George Clifford, district manager of the A. M. Byers Co., Pittsburgh, Pa., President W. G. Boales introduced the speaker of the evening, Dr. James Aston, dean of the school of mining and metallurgy at Carnegie School of Technology, and consulting metallurgist for the A. M. Byers Co. Dr. Aston's address, which was illustrated, dealt with the manufacture of wrought iron pipe.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Copper doesn't rust or corrode and Riverside Copper Range Boilers provide complete protection.
Ask your jobber for prices.
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RIVERSIDE BOILER WORKS, INC.
CAMBRIDGE MASS.

Memphis Contractors Hold Meeting

The Heating & Piping Contractors Association of Memphis, Tenn., recently held a luncheon and business meeting at the Peabody hotel, at which M. J. Biddle of Detroit, Mich., a representative of the national association, was present and made an address. George Richmond, secretary of the local organization, introduced Mr. Biddle when he made his talk on "Better Relations Between the Heating and Plumbing Crafts."

An open meeting was held that evening at eight o'clock, to which master plumbers, heating and piping contractors and wholesalers were invited. This meeting was also held at the Peabody hotel.

◆

New Bedford Association Gives Dinner

The Master Plumbers' Association of New Bedford and Vicinity, Inc., New Bedford, Mass., held a very successful party at the association's rooms, at 1645 Purchase street, December 19. The guests were regaled with music, entertainment and a turkey dinner.

◆

Holds December Meeting

The December meeting of the Illinois Chapter of the A. S. H. & V. E. was held on Monday evening, December 9, at the Sherman hotel, Chicago. There was a large attendance, both of members and visitors. The meeting was turned over to a discussion of temperature control and control devices, which was opened with short talks by representatives of six of the manufacturers of temperature control equipment. It was brought out that more attention has been given to temperature control in the past five years than in all previous time. There was some discussion of zone control and methods for keeping condensation out of the return lines on vacuum systems.

Eleven candidates were elected, unanimously, to membership and are as follows: J. J. Aeberly, department of health of Chicago; C. P. Barry, Narrowitz Heating and Ventilating Co.; F. G. Gibbs, National Regulator Co.; O. F. Gilliam, York Heating and Ventilating Co.; F. I. Raymond, F. I. Raymond Co.; L. Ries, University of Chicago; R. V. Sawhill, Engineering Publications, Inc.; H. M. Shufelt, New York Blower Co.; L. A. Snider, Snider Engineering Service, Inc.; L. B. Spafford, *Heating, Piping and Air Conditioning;* L. W. Washington, National Regulator Co.

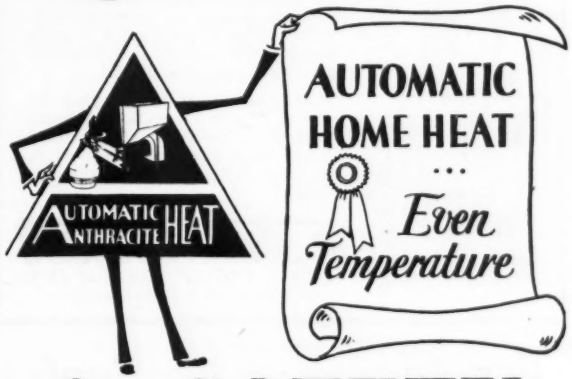
◆

Oakland Masters Discuss Purchasing

The Merchant Plumbers of Oakland, Calif., and the San Francisco bay district have gone into the subject of purchasing pretty thoroughly from the standpoint of the merchandiser, the contractor and the jobber—both in the city and the country. Realizing that ultimate profits depend as largely on judicious buying as they do on energetic selling, the California contractors have manifested keen interest in the mutual interchange of ideas and experiences in purchasing materials of all classes and for all kinds of work.

From round-table discussions bearing on the best purchasing method for the smaller operator, it has developed among other points that, whenever possible, it is advantageous to buy early in the month for one or more defi-

Highest Award



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ON ITS RECORD in THOUSANDS OF HOMES—in all types of heating plants—new and old—steam, vapor, hot water, warm air—and under all conditions of building construction and exposure to cold—the ELECTRIC FURNACE-MAN has won the right to the HIGHEST AWARD.

Its claim of supremacy over all other AUTOMATIC SYSTEMS and FUELS is based on its superior efficiency, its outstanding SAFETY—and its incomparable merits of CLEANLINESS, LABOR-SAVING CONVENIENCE and ECONOMY.

The ELECTRIC FURNACE-MAN is within the price range of every home owner. It is the one MODERN, AUTOMATIC HOME HEATING SYSTEM which meets every need, every purse, every purpose. Also ideal for hot water supply.

Burns Anthracite in the economical Buckwheat sizes. Automatically feeds coal and removes ashes, maintaining any desired temperature. Distributors and Dealers in over 300 cities. Write for interesting booklet.

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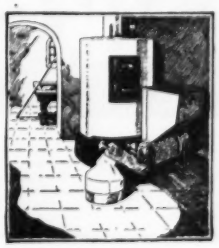

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A FEW DOLLARS MORE

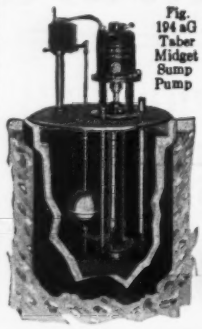


Fig. 194 aG Taber Midget Sump Pump

YOU sell, or ought to sell, satisfactory cellar drainage . . . protection from water damage to merchandise or goods stored in the basement . . . when you sell a sump pump installation.

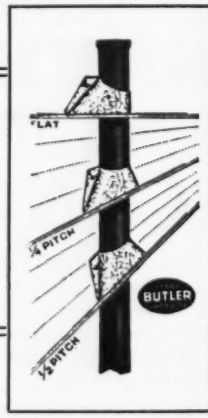
Why permit a few dollars to stand in the way of 25 years of satisfactory service rendered by the Taber Midget Sump Pump? Write for description and prices. See page 909, Domestic Engineering Catalog.

TABER

TABER PUMP CO *Est 1859*

290 Elm Street, Buffalo, New York

For All *Roofs*



Adjustable to meet any pitch roof from flat to half-pitch, Overton Roof Flashings go on with the least expenditure of time and labor.

Overton Roof Flashings make an air and water tight joint that will not loosen up under the strain of any weather.

From your jobber

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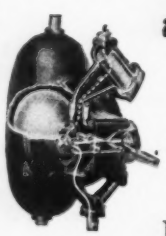
It never forgets the boiler water line



People forget to turn feed water on or off—but this new self-cleaning duplex feeder is built to remember *always*. The self-cleaning feature takes it out of competition. Write for new booklet.

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nite installation jobs, this material being used for showroom display purposes until it is set up. In this way only the very newest products are put on display.

In the matter of turnover, from the standpoint of the country operator, the most profitable plan to follow in the purchase of large units is to fix a minimum of one complete stock-up every three months. As a rule, the country operator finds it necessary to carry a fairly good stock at all times.

The average plumber, not possessed of unlimited capital, should select his stock very carefully. This applies particularly in the case of a man operating a showroom, in which he should display a representative assortment of goods. In fact, buying for any branch of the business requires sober thought rather than snap judgment.

◆

Six Master Plumbers' Licenses Awarded

The Wisconsin state board of health gave passing credits to six candidates for master plumbers' licenses, after the examinations at Milwaukee, on November 18. Those who received their masters' license include: Walter Busch, L. J. Kispert, both of Green Bay; Earl G. Burdick, Oshkosh; Jack Berman, Edwin Tarman, and Rubin Zeiger, all of Milwaukee.

Top row: J. V. Young, F. A. Oelschlagel, L. L. Durkee and H. W. Finch. Middle row: Mont. Henderson, C. C. Anderson, Emile Heymans, J. J. McLeod. Bottom row: Stuart Greenberg, Eric Roberts, L. R. Penhallegon, and H. Porter Wilson. Photos taken at a recent golf meet of the Plumbing and Heating Club of San Francisco

Tri-City Plumbing and Heating Development League Meets

The Tri-City Plumbing and Heating Development League held a meeting at the Blackhawk hotel, Davenport, Iowa, on December 4. Dinner was served to sixty members, followed by an address given by I. D. Greene of the Modern Engineering Co., Davenport, on the subject of "The Development of Welding in the Plumbing and Heating Industries." Announcement was made by the entertainment committee that the annual dinner dance of the league would be held in February.

◆

Savannah Association Establishes Credit Rating Bureau

The Savannah Plumbing and Heating Contractors Association, Savannah, Ga., has recently incorporated, under the supervision of its secretary, F. E. Lewis, a credit rating and collection bureau, together with an accounting system, for the benefit of its members, placing them in position to obtain a uniform system, adequate control records and audits. The association will also, in the near future, begin an intensive and systematic educational publicity program through the air service.

◆

Plans Course in Hydraulics and Pneumatics

A course in Hydraulics and Pneumatics for plumbers has been prepared by Walter S. L. Cleverdon, Associate Professor of Sanitary Engineering of New York University. This work, which will cover what actually happens as water and air pass through pipes, traps, air chambers, etc., will begin February 7, 1930, and carry over until late in June.

It will begin with the tap in the city main and follow the lines of the piping through the building with all appurtenances and then back through the soil, drain and vent lines. Some of the problems to be solved will be: The loss of head due to friction in pipes, bends, increasers, reducers, valves; the cause, prevention and reduction of water hammer; what actually happens in soil and vent lines, glass traps and manometers. Vacuum and pressure gauges will be used with these experiments.

The well equipped laboratory of the university, and the good supply of water available afford an excellent opportunity for study.

◆

Discuss Means of Serving Public

Increasing interest is being shown by the plumbing and heating contractors of the San Francisco Bay district in the matter of how best to serve the public with proper sanitation. How this might best be accomplished was set forth in the following points:

"Adherence to the principles of cleanliness and health. All installations to comply with local ordinances. Encouraging ideas leading toward greater comfort and convenience in living conditions. By following up a completed job to see that the standard of quality is maintained. By selling the idea of beauty and quality. Advocating installation of additional comfort station facilities. Urging adoption of uniform health laws. And by performing a better job than estimated."

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QUESTIONS

ASKED BY READERS AND ANSWERED BY EXPERTS

About Check Valves on Return Piping

Editor, DOMESTIC ENGINEERING:—I have a little problem on which I would like to get your advice.

In some places the insurance laws require that a check valve be placed on steam returns to boiler. What I would like to know is on what side of the check valve the equalizing pipe should be placed. Most of the text books state that it shall be placed on the boiler side of the check. However, I am of the opinion that it would be better to place it on the opposite side, as less pressure and head would then be needed to get the water back into the boiler.

Pennsylvania. S. H.

Based on experience in the installation and operation of numerous steam plants, authorities are convinced that the proper place for the check valve in the return line is outside of the bleeder or equalizer connection.

In brief, the steam header and equalizer forms a part of the boiler, the whole idea being to return the condensation to the boiler from the header as quickly as possible, so that there will be little if any loss of water, thereby maintaining a water line at proper height.

However, the leading boiler insurance companies now require a checkless return by connecting the wet returns into the equalizer at a point within a few inches of the normal water line of the boiler.

This is called the Hartford return connection and has the endorsement of all practical fitters and heating engineers.

◆

Plugged Returns Cause Trouble

EDITOR, DOMESTIC ENGINEERING:—I am having trouble with my returns. They are iron pipe ¾-inch diameter, and some of them get plugged up with something like red rust and I am not able to blow it out with 90-lb. steam pressure. Where the return riser runs straight up, I can punch them out from the basement. Some risers have one or two off-sets. These I cannot punch or blow out. We have a vacuum system of heating.

Michigan. B. J. F.

The difficulty, described in the forgoing letter, occurs occasionally. It may be due to in-leakage to the vacuum returns of raw surface water through some buried underground leak; or it may be due to water carried over with the steam from dirty boilers; or due to careless original cleaning of the system when core sand, clay, scale, etc., were not removed thoroughly. It may be due to the use of some impropor boiler water compound, or may be due to failure to use some sort of boiler compound.

If we have boiler feed water heavily charged with minerals which are separated by heat, and if we waste exhaust steam and so use much raw feed water, and if we carry over water from the boiler into the heating system with the steam, we can quickly deposit the mineral on the return pipe interiors and can close them up.

A long-distance diagnosis or prescription would be an ill-advised procedure.

The material which causes the stoppage should be analyzed in a chemical laboratory, following which the right prescription for preventing recurrence may be evolved.

The stoppages manifest themselves, one deduces, especially where offsets occur in risers and where horizontal or nearly horizontal branches or run-outs are installed.

The stoppages may be due to the normal scale and rust inherent in the manufacture of the pipe and radiation. If this is true the substitution, at each horizontal offset, of new pipe at least one size larger in each case, and a thorough cleaning almost surely will terminate the trouble, since the dirt probably has localized itself at the horizontal offsets.

It is important that all burrs due to cutting and threading tools shall have been removed, so that no sharp edges and a minimum number of obstructions may interfere with the smooth flow of the water.

No matter what material builds up the dams in the offsets the quickest and most effective repair is to install a new piece of pipe at the stoppage. While powerful chemicals could be introduced which would dissolve the formation, they might attack the piping and valves, and their use might have far-flung disastrous consequences.

If the boiler delivers steam which is reasonably free from entrained water and if there is no possibility of entry of raw ground water, or of polluted process water, it will take a very long time for steam to carry over enough mineral derivatives from the water to close up even a ¾-inch return pipe.

◆

Troubled With Odor from Soil Stacks —How It Can Be Overcome

Editor, DOMESTIC ENGINEERING:—I wonder if you could help me to solve a problem. One of my customers has a house located on the top of a small knoll, facing north and surrounded on three sides by tall trees, with a court on the south side. The house is one story, and it has four soil stacks coming out about one third the way up the roof.

The problem appears when the wind is from the north or northwest, because it blows over the trees and roofs in such a way that it forms a whirlpool in the court, when the odor from the stacks is very offensive.

and the smoke from the chimney shows the path of the wind.

We have extended the stacks above the ridge of the roof, but this did not give us the desired relief.

I don't suppose that the smoke situation can be remedied, but this can be endured, because it does not form a downdraft on the boiler or fireplace. We will, however, have to get rid of the odor, and I hope that you can tell me how I can solve this problem.

Ohio. N. C. A.

The shape of the building and the height of the trees are the cause of your trouble.

You do not want to cut down the trees, which are the direct cause of the downdraft in the court. We, therefore, suggest that all the vent stacks be gathered together into one main vent stack, close to the chimney, and the chimney and vent stack carried up high enough to overcome the difficulty.

The vent stack can also be run inside the chimney or enclosed in the brickwork, so that it will present a better appearance than it would if run up along the outside of the chimney.

This should also overcome the smoke trouble.

Obituary

Robert G. Harrington Dies

Robert G. Harrington, plumbing and heating contractor of Ware, Mass., died December 13 at his home, 36 Church street, following a few days' illness. Mr. Harrington has conducted his business at 109 Main street for many years. He was a native of Ireland and came to Ware 45 years ago, and was Ware's first plumbing inspector. He was a charter member of Agapae Council, Royal Arcanum, and a fourth degree member of the Knights of Columbus.

Mr. Harrington is survived by his wife, four sons and three daughters. Three of his sons are connected with the business.

◆

Frank J. Frommell Succumbs to Automobile Injuries

Frank J. Frommell, president of the Hanover Heating Co., Milwaukee, Wis., died December 2 as a result of injuries sustained when the automobile in which he was riding collided with a street car. Mr. Frommell, who was in his 46th year, established the steamfitting company, of which he was head, four years ago. He was born in Milwaukee. Surviving him are his widow, three daughters and three sons.

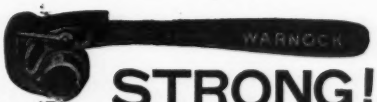
◆

L. R. Hill Dies

L. R. Hill, engaged in the plumbing and heating business with his brother, C. D. Hill, in Laurel, Miss., for a number of years, died November 23 in his 32nd year, after a lingering illness. Mr. Hill was born in Holly Springs, Miss.

◆

Clarence Reynolds, plumbing and heating contractor of Memphis, Tenn., has the sympathy of his friends in the trade on account of the death of his mother on December 11.



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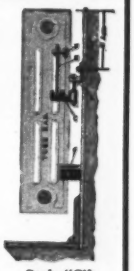
For wall and tube type radiators. No obstruction back of radiator. No need for accurate measurements of anchor bolts. Height and lateral variations taken care of. Hanger is out of sight. Adapted to any wall material. Recommended by architects and contractors.



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That's one of the remarks you hear from people today. Why not tell them about Wade protection against backwater and open the way to many other sales?

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Made to meet the requirements for all roofs. You are always safe in installing Bullard Roof Flashings.

Write for particulars or ask your jobber.

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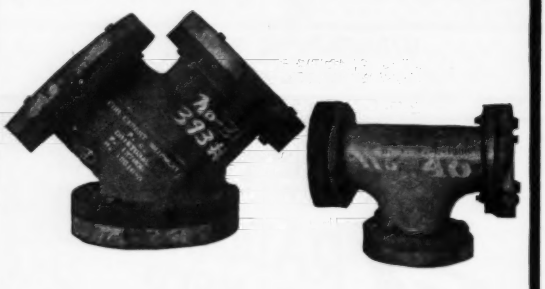

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When you need a pipe or fitting *quick*—wire "Lynchburg." . . . Almost every conceivable type is stocked—awaiting your order.

Bell and Spigot Pipe and Fittings from 4" to 48"

Flanged Pipe and Fittings, 3" to 84"

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342 Madison Ave. NEW YORK, N. Y.

Starts Drive to Increase Membership

The Louisiana-Mississippi Association of Plumbing and Heating Dealers adopted a resolution at a recent meeting of the officers and board of directors, which calls for a division of Mississippi and Louisiana into zones, preparatory to an intensive drive for membership.

President C. A. Hunter of Alexandria, La., will have charge of the Louisiana territory, while Past President R. R. Hamilton, Gulfport, Miss., will direct the drive in Mississippi. Zone captains will be appointed for each district. Several new associations have been formed within the past year in both states.

◆

Pittsburgh Contractors Hold Smoker

The Plumbing Contractors Association of Pittsburgh, Pa., was host at a smoker and illustrated lecture, held December 3, in the gymnasium room of the Keystone Athletic club. Following the motion picture, the members and guests were entertained with short addresses by representatives of Crane Co., Chicago, and officers of the Pennsylvania State Association of Master Plumbers.

◆

Move to Sponsor Certified Heating Program

As a result of talks given before the Anthracite club of New York City on December 11 at the Printers Crafts club, that city, by Joseph C. Fitts, assistant secretary of the Heating and Piping Contractors' National Association, and William E. Taylor, secretary of the Heating and Piping Contractors' New York Association, suggesting that the membership lend its aid in furthering the program of certified heating which the organizations of the speakers have inaugurated, a committee of seven was named by O. F. Ostby, vice president of Domestic Stoker Co., New York City, and president of the club, for this purpose.

The committee, whose first obligation is to meet with the board of directors of the national association for further discussion of the idea, consists of the following: A. F. Demler, manager of Anthracite Coal Service; D. H. Faulkner, New York manager of The H. B. Smith Co.; L. N. Burnside, D. L. & W. Coal Co.; Clifford Strock, Heating and Ventilating Magazine; Noel Cunningham, Domestic Stoker Co.; Harry Eastwood, Combustion Specialties Co., and F. C. Conkey, Central New Jersey Coal Exchange.

After indicating the fundamentals of certified heating and that the program was sponsored because the industry has become so highly competitive that inadequate heating installations are far too numerous, Mr. Fitts pointed out that coal men are often blamed because plants do not function properly. With certified heating, he stated, coal men can strengthen their position with regard to the heating service they offer. The discussion which followed the talk emphasized the definite need of the service the plan offers, and also the suggestion that old plants should be inspected and an effort made to bring them up to proper standards.

Mr. Taylor, commenting on the above suggestion, said that a wonderful tie-up could probably be

effected between the two organizations for the purpose of working toward this end. He further said that until recently there has been no organization of proportions sufficient to speak for the entire heating industry, but with the recent organization in New York City of the Heating Board of Trade, which embraces all who are interested in its development, a favorable plan may be arrived at which will bring about the results which both associations desire.

Henry B. Gombers, secretary of the Heating and Piping Contractors' National Association, remarking on the numerous changes he has witnessed within the industry during his thirty-three years of service, said that certified heating climaxes all of the efforts.

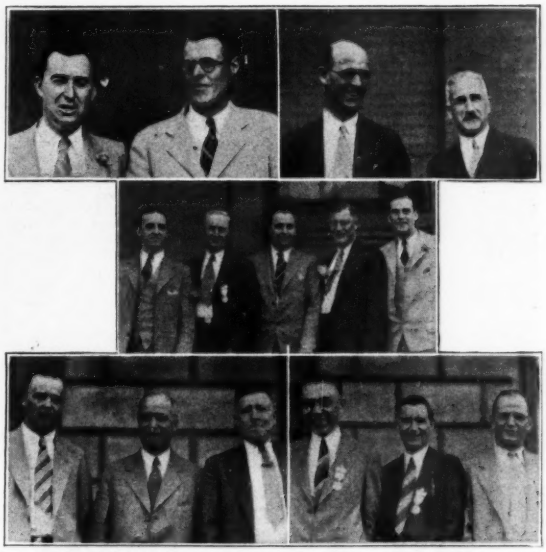
M. E. Durkee, manager of the certified heating department of the New York City association, expressed himself as being gratified in hearing comments so favorable to the proposition which he is promoting.

◆

To Hold First Annual Dinner Dance

The New York University Heating and Ventilating Engineers Society, an organization of graduates and students of the heating and ventilating course at that institution, has arranged to hold its first annual dinner dance on January 18, 1930, at the Hotel Martinique, New York City.

The society had its origin at New York University in June, 1928, and in addition to former and present students it lists in its membership a number of honorary and associate members. Among its honorary members



Top row: J. J. McDonald of Coyne & Delany Co., Brooklyn, N. Y.; H. K. Ormsby, Jr. of Hoffman Specialty Co., Inc., Waterbury, Conn.; E. T. Needham, vice president, and J. M. Bell, secretary-treasurer, Wolverine, Ltd., Toronto, Canada. Middle row: W. J. Ryan of Thos. Maddock's Sons' Co., Trenton, N. J.; S. P. Ainslee of Johnson City, N. Y.; H. T. Northrup of Utica Plumbing Supply Co., Utica, N. Y.; R. J. Nuber of W. A. Case & Son Mfg. Co., Buffalo, N. Y.; Thomas Foley of Thos. Maddock's Sons' Co., Trenton, N. J. Bottom row: G. W. Sorensen, J. W. Barber and Omar McDowell, all of Rund Mfg. Co., Pittsburgh, Pa.; Walter Raid, J. Soehle and H. C. Asquith, all of Philadelphia, Pa. Photos taken at the convention of the National Association of Master Plumbers, held in Buffalo, N. Y.

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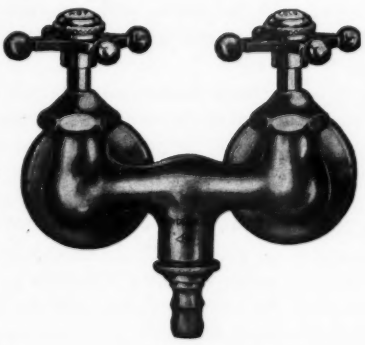

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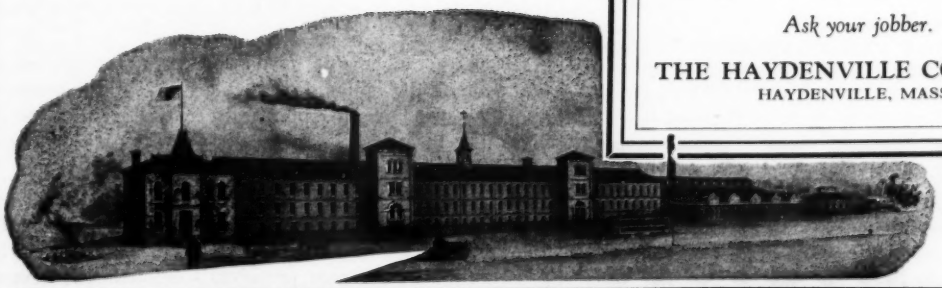

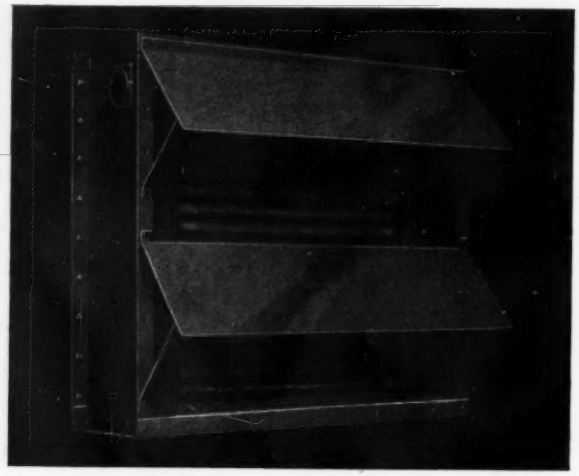

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Unit Heaters

are men prominent in the heating and ventilating profession such as Dr. A. A. Adler; W. R. Zuhlke; Dr. Bernard Goerg; Collins P. Bliss, associate dean of the College of Engineering at New York University; Professor S. K. Barrett, director of the evening engineering division, and other professors who conduct the course.

The aims of the society are both technical and fraternal. The foundations for some very constructive work have been laid. At each monthly meeting a member, who is chosen alphabetically, must deliver a lecture upon some phase of heating and ventilation. Lively and interesting discussions invariably follow these lectures. In this manner the society hopes to accustom its members to public speaking. The officers are as follows: William G. Kreitner, president; Stanley J. Mickewicz, vice president; John H. Walsh, secretary and treasurer.

◆

Elects New Officers for 1930

The Plumbing and Heating Merchants Association of Champaign-Urbana, Ill., has recently elected its officers for the coming season. John V. Brannigan has been elected president; William Holmes, vice president; and Robert D. Ticknor, secretary and treasurer.

◆

A. S. H. V. E. Announces Plan for Annual Meeting

Many activities have been planned for the members of the American Society of Heating and Ventilating Engineers when they assemble for the 36th annual meeting of the society at the Benjamin Franklin hotel, Philadelphia, Pa., during the week of January 27, 1930, for a four day meeting.

Registration will open on Monday, January 27, at the Benjamin Franklin hotel and the entire day is reserved for council and committee meetings and inspection trips to nearby industrial plants.

Promptly at 10:00 o'clock on Tuesday, January 28, the first technical session will be opened by President Thornton Lewis, Philadelphia, and on each morning (Wednesday, Thursday and Friday) technical sessions will be held at the hotel.

In the afternoon the technical sessions will be transferred to the commercial museum and will begin promptly at 2:30 so that there will be plenty of time to discuss papers and inspect the International Heating and Ventilating Exposition, housed in the same building and open from noon until 10:00 p. m.

On the social side, events will commence on Monday evening when the arrangements committee of the local chapter will greet the arriving guests and the ladies will be entertained at dinner and then go to the theatre. Refreshments will be served to both men and women about 11:00 p. m.

Special arrangements have been made for the entertainment of the ladies during their stay in Philadelphia and they will have an opportunity to visit Valley Forge and other historic spots, as well as enjoy afternoon tea, a breakfast bridge and a shopping tour.

The main social event of the meeting will be the annual banquet on Thursday evening, January 30, at the Benjamin Franklin hotel and this will be featured by presentation of the past president's emblem and several

surprise novelties which have been arranged by the local members.

The past presidents of the society as usual will hold their annual dinner and the officers and council will entertain the authors of papers.

The technical program will cover the following:

REPORTS

President's Message.
Reports of Officers and Council Committees.
Report of Committee on Research.
Report of Research Director and Technical Advisory Committees.
Reports of Special Committees.

CODES

Report of Continuing Committee on Testing and Rating of Low Pressure Steam Heating Boilers, by L. A. Harding.
Report of Committee on Testing and Rating Unit Heaters, by D. E. French.

TECHNICAL PAPERS

Preventing Condensation on Interior Building Surfaces, by Paul D. Close.
Pressure Difference Across Windows in Relation to Wind Velocity, by J. E. Emswiler and W. C. Randall.
Some Studies of Airation of Garages, by W. C. Randall and L. W. Leonhard.
Power from Process and Space Heating Steam, by L. A. Harding.
Air Infiltration Through Various Types of Brick Wall Construction, by G. L. Larson, D. W. Nelson and C. Braatz.
Air Conditioning of the Halls of Congress, by L. L. Lewis and A. E. Stacey.
Measurement of the Flow of Air Through Registers and Grilles, by Prof. L. Davies.
Surface Transmission Coefficients, by Rowley, Algren and Blackshaw.
Absorption of Solar Radiation in its Relation to the Temperature, Color, Angle and Other Characteristics of the Absorbing Surface, by F. C. Houghten and Carl Gutberlet.
Rating of Heating Boilers by Their Physical Characteristics, by C. E. Bronson.
Method of Testing Unit Heaters Suitable for Field Use, by L. S. O'Bannon.
Pipe Sizes for Hot Water Heating Systems, by Elmer Smith and F. E. Giesecke.
Panel Warming, by L. W. Fowler.
Tests of Disc and Propeller Fans, by A. I. Brown.

Certified Heating

By M. E. DURKEE

The Heating and Piping Contractors New York City Association has just completed one of the most progressive years in its 43 years of existence. The development of the past year demonstrates clearly that many heating contractors are awaking to their responsibility to cooperate, unselfishly, through their association, as a medium, to better serve their clients and the building industry. They are coming to the realization that cooperative activity for the welfare of all is the order of modern business, and that if they are to make this heating business one in which they are proud to be engaged, they must discard all selfish thoughts and actions by which they gain at the expense of another's loss. The old policy of "the survival of the fittest regardless," is being changed to the policy of "live and let live," and they are finding that not only is the new policy more profitable but it causes fewer headaches for the heating contractor.

Sample of the certificate and boiler plate used by the members of the Heating and Piping Contractors New York City Association

One of the most important steps taken by this association during the past year was the adoption of the certified heating plan as instituted by the Heating and Piping Contractors National Association. The basic principle and sole purpose of certified heating is to render service justly and unselfishly.

Certified heating service applies to that class of work where it is not customary to employ a consulting engineer, and it is divided into two main branches, one to regulate, the other to identify.

Regulation is provided by checking of plans and inspection of jobs to make certain that every certified heating installation is calculated, designed and installed according to the nationally adopted standards. These standards were prepared by leading heating engineers and contractors and published in a form which may be easily applied by the heating contractor. Every member of the association has a copy of these standards which provides him with up-to-date methods and basis for calculating radiation, and selecting pipe and boiler capacities for any building. These standards provide for the first time in the history of the heating industry a universal code by which a heating installation may be gauged.

After providing regulation it was necessary to obtain identification so that the buyer would know how to specify and recognize the right heating installation for his needs, therefore, the accompanying trade-mark was copyrighted and adopted.

This trade-mark embodied in a certificate and boiler plate is delivered to every owner of a certified heating installation.

The certified heating certificate provides the owner with a means of obtaining correction to any difficulty in

the original installation and this without further expense. The metal certified heating plate which is attached to the boiler serves as identification for the heating installation, and becomes an asset to the building to assist in selling, leasing or financing.

Certified heating provides the contractor with something to sell, it takes him out of the "price matching class." He can obtain a fair price for his job because the buyer recognizes what he is to receive.

Every member of the New York City association has adopted the standards and will furnish a certified heating installation for all jobs which they furnish within the specified class. These members do about 80 per cent of the volume of heating work done in Manhattan.

It is the desire to expand membership in the association to provide certified heating service to all persons in every community through the heating contractors.

In an effort to acquaint everyone concerned with the services and protection available, a monthly direct mail campaign is maintained to a list composed of architects, engineers, general contractors, loan agencies and manufacturers. In addition information is sent daily to those planning to buy or to build.

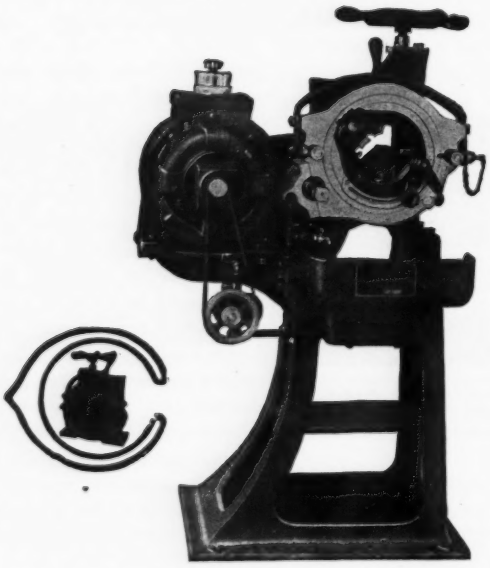
The groups who furnish coal, oil, and gas fuel as well as many leading architects, loaning agencies and manufacturers are giving favorable consideration and assistance in the promotion of certified heating.

As certified heating demonstrates ability to meet, unselfishly, the great need for its services, it becomes an ever increasing power in creating confidence and building good-will for the industry. Thus it enables those in the business to obtain a fair return for services rendered.

Conditions Home With Cave Air

(Continued from Page 46)

the cave air is at a temperature of 55 deg. Fahr. and has a relative humidity of 87 per cent. This is a result of natural conditions in the caverns, and the air is considered very damp. However, during the winter the air in the building is maintained at a temperature of 70 deg. Fahr. with the result that when the temperature of the cavern air is raised, the relative humidity is lowered and for this temperature it becomes 50 per cent, which is well within the comfort and health zone. In summer time, generally speaking, the higher the outside temperature the lower should be the relative humidity, for comfort, since summer comfort depends (within limits) upon the rate of evaporation of moisture from the skin. The cooling effect of the electric fan is a result of this principle. Ordinarily, though, highest relative humidities are encountered in the summer time because of the higher temperatures and the corresponding increased ability of the air to retain moisture. Moisture is removed from the air by lowering the temperature of the air to below the saturation point. When air is saturated it will not hold any more moisture. This is called the dew point. When air is cooled below this dew point, the excess water vapor is precipitated out in the form of water, as in the case of a cold pitcher of water on a hot day or as in the case of the formation of frost on cooling coils. The condenser in the condensing chamber serves to cool air below the dew point and take out the desired amount of water vapor.



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PIPE THREADING MACHINE

Curtis Pipe Threading Machines will save time, money and trouble. They are light in weight (the 1-4 in. weighing but 680 lbs.) require very little floor space and work so easily that they can be hand operated during power failures.

The dies turn instead of the pipe and this important operating feature allows bends to be threaded.

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After leaving the fan the air goes through a duct 4 ft. by 7 ft. and 105 ft. long to the plenum chamber in the basement of the house. From the plenum chamber reach six different passageways for air, all below the floor level. From all of these six locations or distributing centers rise pipes 12 inches in diameter and one of these pipes goes to each room in the house. These pipes are placed within large metal lined flues. The central pipe

Some iden of the size of the natural formations is gained by comparing them with the iron pipe hand rail in the foreground. Contrary to some popular opinions, this cave air is not stagnant, which is a result of the difference in temperature between the inside and outside air

carries the fresh air, and the flue about it carries off the vitiated air—if air which has been in a room four minutes can properly be called vitiated. The large ventilating flues continue to the attic, where they all open into a gathering chimney from which the air which has been throughout the house passes to the outside air again.

At the base of each pipe through which air is supplied to the rooms of the house is a mixing valve, controlled by a cord passing through the pipe to the room the pipe supplies with air. This valve controls the temperature of the air reaching a room, by determining the proportions of normal temperature cave air and steam heated air which form the body of air delivered to the room. Of course, heat is used only in cold weather, there being no necessity or desire to heat the air in summer.

Bacteriological Test Made

One of the underlying theories of the air conditioning system, as previously indicated, was that air filtered through limestone is healthful and aseptic. After the installation was made tests were performed to prove this and to establish the merit of the system. This was done using bacteriological culture mediums and plates. Bacteria, of course, are microscopic in size. A large amount of the dust in the air is also microscopic in size. Bacteria cling to the dust particles and in that way, in addition

Every Plumber Should Know About the Various Types of

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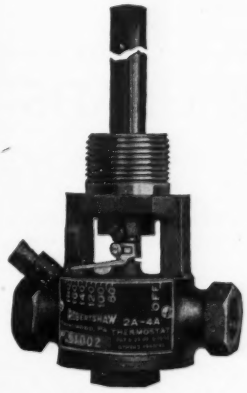

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Throttling Type

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Room Temperature Control

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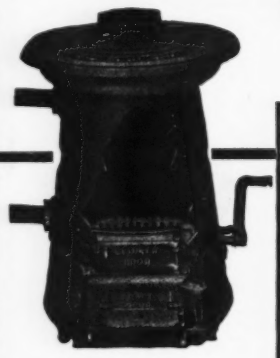

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to other ways, are circulated. By uncovering the plate and exposing the culture medium to the air, say for one minute, dust particles are collected on the medium together with any bacteria which may be on the particles. The bacteria thrive and multiply in the culture medium with the result that colonies of bacteria form. Naturally, the more colonies that there are on a plate, the more bacteria there were in the air to which the plate was exposed. In making comparisons, exposures of the different plates to the different samples of air are made for like periods of time. In other words, if one plate is exposed for one minute, all of the other plates would necessarily be exposed for one minute.

In the test it was found that on 12 plates exposed to air in the cavern there were two colonies. In nine plates in the house, 6 colonies resulted in one test. In one plate in a nearby farm house, perfectly clean and considered a fine dwelling, 143 colonies resulted. On one plate made in a city back yard, 450 colonies resulted. On one plate made in a New York street car, 1,600 colonies resulted. Two plates in the finest operating room in one of the country's leading hospitals showed, respectively, 65 and 58 colonies. In other words, the cavern air is practically free from bacteria.

The question is raised as to how damp cool cave air can be as pure, if not purer, than sunlit air. This is answered by the fact that all of the air in the cave is drawn in from outdoors and has been sun-cured. Moreover, it is not stagnant air; the difference in the outside temperature and the inside temperature keeps up a constant circulation of air which is drawn in and exhaled through countless small openings in the rock and earth. In other words, the air is filtered through limestone.

Dust Removal from Air

Obviously, it is impossible for everyone to build his home on the top of a hill above a subterranean cavern. As a result, modern air conditioning is built around the modern home and requirements rather than the home being built around or in relation to an air-conditioning plant. However, the objectives are the same, namely obtaining a correctly humidified air, reasonably free from bacteria laden dust particles, at the proper temperature. Instead of employing limestone as an air filter, a common method or scheme for removing dust and suspended particles of foreign matter from the air introduced in a building for ventilation or air conditioning is accomplished by employing an air washer. The air to be cleaned is first passed through a finely divided water spray delivered from a group of mist or spray nozzles, in the path of the moving air in order to obtain a thorough mixture of the air and water. The air leaving the spray chamber is passed over the wetted surface of a series of vertical scrubber and eliminator plates. These plates are provided with several bends to deflect the air passing through. The solid particles of matter carried by the air on coming in contact with the wetted surfaces are entrained and flow down the surface of the plates with the water to the settling tank and filter and are thus removed from the air and from the circulating water.

Likewise, other phases of air conditioning are accomplished mechanically to the end that the completely modern home is supplied with air which is conducive to the health and comfort of the occupant.

Right of Heating Contractor to Lien on Jointly Held Property

(Continued from Page 86)

thus authorize a mechanic to hold a lien, unless the other party has knowledge that the contract has been entered into and that the materials are being furnished for and are being used in the improvement of such property and stands by without making any objections. * * *

"The evidence in the instant case goes no farther than to show that the wife 'was living with her husband, . . . at and upon the premises and upon the real estate described in plaintiff's complaint, at the time the contract in question was made and at the time of the installation', * * *

"This is not sufficient to show that she consented to the installation, or that she was not objecting to such installation. The burden was on plaintiff to prove all the facts necessary to bind the wife. This he failed to do. The burden was not on the wife to show that she did not consent. . . . She may have objected in vain. Property real or personal, when held by husband and wife by entireties, is not liable to be sold on execution to satisfy a judgment against the husband alone."

Conclusion

In conclusion, the court affirmed the judgment denying the plaintiff a lien upon the property for the cost of the heating plant. Taking the position, as outlined in the opinion, that, since this property was held in the names of both husband and wife, the husband could not bind it by the contract entered into, since his wife did not also join in the execution of the contract.

The foregoing case constitutes a striking illustration of the importance of care on the part of heating and plumbing contractors when improvements are being installed in property held in this manner. For unless such a contract is signed by both husband and wife, the contractor may find himself denied any lien upon the property for improvements made under such a contract.

It is true, of course, that a husband or wife may be in fact the agent of the other so that any contract made will bind them both. But an agency of this kind is not always easy to prove, especially if it is denied by the party sought to be charged. And, as we have seen, the mere fact that a wife lives with her husband in property being improved will not be sufficient to charge her for her husband's contract.

In the light of which, there is just one safe rule for heating and plumbing contractors to follow: If property sought to be improved in held by both husband and wife, have them both sign the contract authorizing the work. Then there can be no after-dispute, nor any question of the validity of a lien. Otherwise, where a contractor does work on the order of either a husband or wife alone on property held by them both, there is always the possibility of serious after-dispute in the event a lien is filed.

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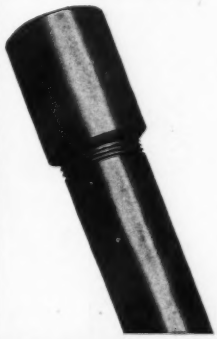

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Woman's Page

At a recent meeting of the General Federation of Women's Clubs a speaker referred to the fact that almost one-half of the incorporated towns in the United States have no water systems and more than one-half have no sewerage systems. "It is time we undertook some specific work for the enactment of legislation to improve conditions which affect so many homes in our nation," said one speaker. Many women, both individually and through their club affiliations, have been actively interested in the securing and enforcement of plumbing codes, which mean better sanitation. The new year offers abundant opportunity for women of the auxiliaries to further the enactment or better enforcement of plumbing codes in their communities.

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Board of New Jersey State Auxiliary Meets

The directors of the Women's Auxiliary to the New Jersey State Association of Master Plumbers held a board meeting on December 5 at the Walt Whitman Hotel, Camden, N. J. Routine business matters were transacted. The following ladies were present: Mrs. William T. J. Orriss of Union City, president; Mrs. Charles Samuel of Montclair, past president; Mrs. John J. Corcoran of Jersey City, first vice president; Mrs. J. Miller Heidweiler of Trenton, second vice president; Mrs. Henry J. Williamson of Montclair, treasurer; Mrs. Charles Zimmerman of Union City, secretary; Mrs. Viola Strack of Camden, Mrs. M. Wilson of Lyndhurst, and Mrs. Louis Wiegele of Athenia, trustees. The meeting was held at the same time as the meeting of the board of directors of the New Jersey master plumbers' association.

Death of Mrs. Hacker

Mrs. Pauline Hacker, wife of Fred Hacker, a master plumber for many years in Kansas City, Mo., died December 8. Mrs. Hacker had been a continuous and active member of the Kansas City auxiliary since its inception during the year 1910, at the master plumbers' convention in Chicago. She served as president of the Kansas City auxiliary for four years, and was its first corresponding secretary. From 1923 to 1927 she served as corresponding secretary to the Women's Auxiliary to the National Association of Master Plumbers.

The Kansas City auxiliary expresses its feeling for Mrs. Hacker in the words of the corresponding secretary, Mrs. George Foley: "No duty connected with her home life or her auxiliary work was ever too difficult for her to give of herself wholeheartedly for its accomplishment. The Hacker family has lost a real mother—the local members of the auxiliary have lost a real friend. The members of the national auxiliary will long remember Mrs. Hacker

A Message to the Auxiliaries

By Mrs. H. H. Diedesch, of Chicago, president of the Women's Auxiliary to the Illinois Master Plumbers' Association.

The new year will soon be with us. With its coming, we are all reminded of the time-honored custom of making good resolutions to be put into effect during the coming months. We all enjoy the spirit of friendship and cordiality manifested at the auxiliary meetings. This would be a good time for us all to resolve to work for even greater friendship among the members of the women's auxiliaries, and increased co-operation with the master plumbers' associations. Another good resolution, too, would be to attend the state conventions, when possible, in order to appreciate to the full what is being accomplished by the auxiliaries. I hope to have the pleasure of seeing a large number of women from all over the state at the Illinois convention to be held next month.

with love and affection, as she served them well and faithfully."

Mrs. E. D. Hornbrook, past president of the national auxiliary, has sent the following expression of appreciation for Mrs. Hacker:

"Mrs. Hacker was ever ready to help her women's auxiliary. She served the women's national auxiliary as corresponding secretary from 1923 to 1927. Her wise counsel in those early days was most helpful. We spent long hours together trying to garner the fruits of our labor in increasing the number of women's auxiliary, preaching the value of the auxiliaries, placing the N. A. M. P. scholarship for sons of master plumbers intelligently before all the local and state auxiliaries. Mrs. Hacker was an ideal mother, a true helpmate, a generous friend."

Milwaukee Auxiliary Elects Officers

Mrs. O. Waskow was re-elected president of the ladies' auxiliary of the Milwaukee Master Plumbers' Association at a meeting held Monday, December 2, in the Roanoke Room of the Randolph Hotel, Milwaukee, Wisconsin. Other officers chosen for the ensuing year include: Mmes. F. Westfahl, W. Schoenrock, and W. Dusold, vice presidents; H. Weber, recording secretary; L. Schmaus, corresponding secretary; R. Wenzel, treasurer; R. Friend, chaplain; and C. Priegel, sergeant-at-arms.

Committees for the ensuing year were appointed as follows: Entertainment, Mme. W. Dusold, chairman; W. Schoenrock, J. Brah, O. Dittmer, C. Heffling, A. Backes, J. Schuh, J. Bauer, P. Grunau, G. Bronenkamp, A. Bishop, C. Blackford, I. Rudig, and W. Kirchgaessner. Reception Committee: Mmes. P. Vogt, chairman; E. Henoch, H. Dearsley, A. Boettcher, J. Hahn, A. Hoggmann, H. Haese, A. Haack, B. Stern, H. Pfannenstiel, G. Block, A. Lass, R. Schmidt, B. Graper, L. Soergel, and R. Stemper. Mrs. J. Hahn heads the "sunshine" activities for the club for the ensuing year and Mrs. P. Curley will handle the publicity. Membership activities will be attended to by Mrs. C. Heffling and Mrs. O. Dittmer. Officers of the association will be installed at the first meeting next year, to be held January 6 at the Randolph Hotel, Milwaukee.

Santa Monica Auxiliary Enjoys Card Party

The Santa Monica, Calif., Women's Auxiliary recently enjoyed a very successful card party at the Association Hall where members, husbands and their friends spent the evening. Mrs. Lipsky, Mrs. Wilmot, Mr. Lee and Mr. Matheson won honors at five hundred. Later in the evening all enjoyed a supper served at a large banquet table artistically decorated with attractive colors and favors. At the regular meeting in November, one new member was admitted to the auxiliary. Refreshments were served by Mrs. Tyler after the meeting.

Cleveland Auxiliary Has Active Season

The Ladies' Auxiliary of Cleveland, Ohio, has had an active season this autumn. Regular meetings are held the first Wednesday of each month, with a good attendance at each meeting. After the disposal of business matters, cards are enjoyed. Hostesses for the November meeting were Mrs. F. Millar and Mrs. J. Kovach. Mrs. A. A. Heiss and Mrs. A. Kellar won honors. Mrs. G. Sullivan and Mrs. H. Fagan were hostesses for the December meeting. Mrs. A. Kellar and Mrs. A. A. Heiss carried off the honors this time also. A delicious luncheon, for which members expressed their thanks to the hostesses, was served at each meeting. In October a very successful card party was held. Mrs. Whittle and Mr. H. Sullivan took first

THERE'S profit for you in selling King Tank Heaters! Here's a hot water heater that you can sell to anyone. Its low cost and low operating expense fit any pocketbook. Put one on display.

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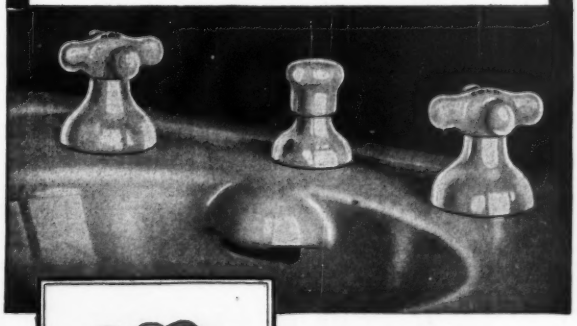

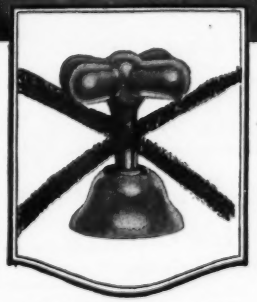

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The ORIGINAL Compound Lever Ball Cock. Elevated, Low-Down, Top and Bottom Supply Tank Levers and Valves.

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When you Recommend a Kaustine septic tank . . .

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NEW BEAVER

Easy-Cutting Die Stocks

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WRITE FOR CATALOG No. 18

THE BORDEN COMPANY 510 DANA AVE. WARREN, OHIO

honors, while Mrs. Webb and Mr. Cook took second honors. A hearty vote of thanks is due the committee who worked so hard to make the party such a success. A party (something different) is planned for the January meeting, and the entertainment committee hopes that all the members will come out to enjoy the good times planned for them.

Jersey City Auxiliary Celebrates Hundredth Meeting

The one hundredth meeting of the Jersey City Auxiliary was celebrated on Tuesday, December 3, at the Elks Club, Jersey City, by a dinner and theater party, at which the master plumbers were guests of the auxiliary.

The auxiliary has changed its meeting room from Masonic Temple, Bergen avenue, Jersey City, to Lincoln Hall, Lincoln street and Central avenue, Jersey City, and will meet hereafter on the first and third Wednesdays of each month.

Pasadena Merchant Plumbers Have Holiday Dinner

The Pasadena merchant plumbers and their wives held their regular monthly dinner Tuesday evening, December 3, at the club rooms, 484 South Hudson street. A turkey dinner with cranberries and all the "fixings," was beautifully served and was enjoyed by thirty members of the organization. After dinner, cards were played, high scores being won by Mrs. George Richardson and Mr. E. Redman. A Christmas party for the children was planned for December 20.

Canton Auxiliary Holds Card Party

The Ladies' Auxiliary to the Canton Master Plumbers' Association held its monthly meeting December 3 at the association rooms, with Mrs. Robert Heiman and Mrs. John Roth as hostesses. A regular business meeting was held after which five hundred was played, with Mrs. Carl Sponseller and Mrs. Harry Zimmer winning honors. A Christmas exchange was held among the members of the auxiliary. The next meeting will be held on January 7, with Mrs. D. J. Ahearn and Mrs. August Switzgable as hostesses.

The ladies' auxiliary and the Canton master plumbers were entertained with an evening card party on December 10 at the association rooms. Five hundred was played, with Mrs. Albert Kauffman, Mrs. C. G. Hahn, Mrs. A. W. Baum, Mr. Clarence Baechel, Mr. Carl Sponseller and Mr. Harry Zimmer winning honors. A delightful luncheon was served by the hostesses, Mrs. Clarence Baechel, Mrs. Harry Zimmer and Mrs. James Fife.

Mahoning Valley Auxiliary Celebrates Anniversary

The Ladies' Auxiliary to the Mahoning Valley Master Plumbers' Association recently celebrated its tenth anniversary with a banquet at the Tippecanoe Country Club. At this banquet, the master plumbers were special guests. Pink roses, with yellow and bronze baby mums decorated the table, which was lighted by tall yellow tapers tied with bronze tulle bows. Mrs. George Blunt presided over the program after dinner. Mrs. Ed Williams, first president of the organization, and Mrs. Jacob Brenner both gave talks. M. F. Rielley, president of the master plumbers' association, and Ed Williams gave toasts. Frank Conroy led the singing. Later, cards were played. Mrs. J. F. McLaughlin, Mrs. C. W. Wilson, M. F. Rielley and J. F. McLaughlin won honors at bridge. Mrs. Samuel Shelton, Mrs. Jacob Brenner, August A. Schmutz and Fred Mayberry won honors at five hundred.

Pittsburgh Auxiliary Plans Social Affairs

The Ladies' Auxiliary of Pittsburgh, Pa., held an interesting meeting in November. A number of social affairs are being planned for the winter. Mrs. John H. Keane, Mrs. William A. Fritsch, Mrs. George F. Schade, Mrs. James Werner and Mrs. A. Zilliox have been appointed to act as chairmen for these affairs, and every member will serve on the committee at some time during the year. For the card party on December 10, Mrs. Keane was appointed chairman, while Mrs. E. F. Cass, Mrs. M. Snively, Mrs. H. DeWitt, Mrs. J. McDonough, Mrs. F. Schleib, Mrs. Jas. Weldon, Mrs. H. Bachman and Mrs. Greiner were members of the committee.

Newton Auxiliary Meets

On Wednesday evening, December 11, the regular monthly meeting of the Auxiliary of the Newton, Mass., Master Plumbers' Association met at the home of Mrs. Fred Perkins, 18 Eddy street, West Newton, Mass. After a lengthy business meeting which was largely attended, bridge was played, honors going to Mrs. Warren, Mrs. Sanders and Mrs. Hickey. A collation was served and a happy evening was enjoyed by all.

San Francisco Auxiliary Elects Officers for New Year

Marking the approaching end of one of the most successful years in the history of its organization, the ladies of the San Francisco Auxiliary met at Plumbers' Hall, 120 Page street, on the afternoon of December 5th. The most important business to be transacted was the election of officers for the coming year.

As a result of the voting the following members were chosen for executive posts during 1930: for president, Mrs. Roy Murray; for vice president, Mrs. Wm. Koenig. Mrs. Joseph C. Sand was re-elected financial secretary, and Mrs. L. Ravani was again selected to act as sergeant-

Groups of members of the San Francisco Women's Auxiliary, gathered for their meeting of December 5. Top row, left to right: Mesdames F. Gomersal, F. Glemser, A. Newmark, L. Ravani, sergeant-at-arms, C. W. Lubliner, E. A. Bailing and Roy Murray, new president. Bottom picture, left to right: Mesdames J. J. McLeod, A. G. Trexise, retiring president; S. J. DiVecchio, Joseph C. Sand, secretary, Alexander Coleman, G. Y. Morton, J. J. Deasy, Charles Meyer, A. I. Mollis

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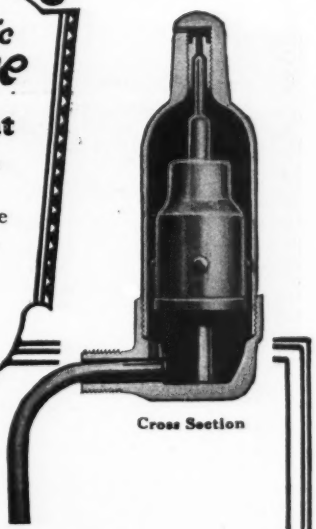
A Large Float

Heavy Cast Brass Base

Free sample valve for testing for the asking

All metal, non-adjustable



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For bakeries, laundries, clubs or restaurants where a constant supply of properly mixed water is needed.

This Valve is thermostatically controlled from the inside and is positive in its action at all times.

The Leonard-Rooke Line of Water Mixing Valves for every kind of installation will be of interest to you.

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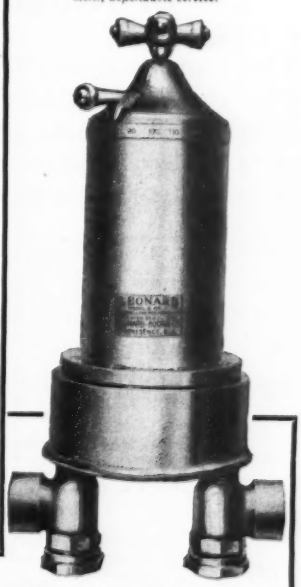
The Leonard Thermostatic Water Mixing Valve will give safe, efficient, dependable service.



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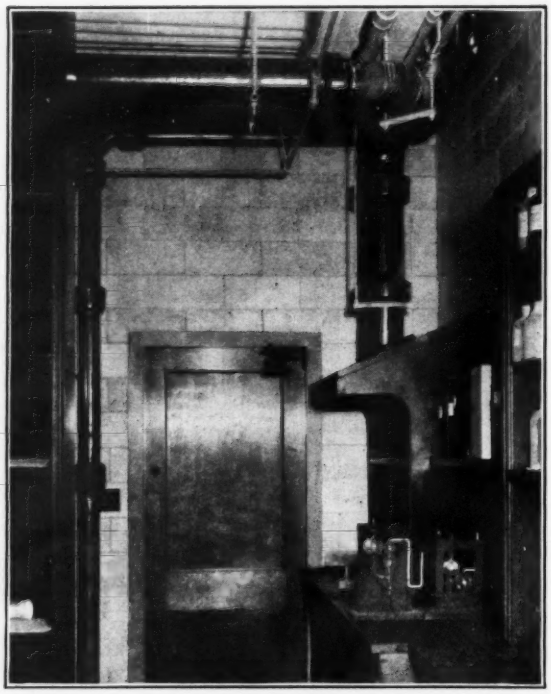
Incorporated 1913 PROVIDENCE, RHODE ISLAND

KNIGHT-WARE
"IT IS THE BODY ITSELF"



Knight-Ware 9" Vent From Hood and Waste Line at Left—Princeton University

More Than 16 Carloads of Knight-Ware!

The magnificent new Chemistry Building at Princeton University in which no expense has been spared to make it one of the finest and most modern laboratories in the country will be formally opened for use this Fall.

All Waste and Drain Lines, Sump and Ventilating Lines and Ducts are of KNIGHT-WARE. Bores of Pipe range from 2 to 28 inch and more than 16 carloads of our material were used in this building.

We shall be glad to be of service

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at-arms. The retiring president and vice president were, respectively, Mrs. Albert G. Trezise and Mrs. George Y. Morton. Installation ceremonies will take place at the January 2 meeting which will also be featured by an elaborate luncheon party.

Foremost among the accomplishments of the year just closed was the stimulation of an added interest in the affairs of the organization, this being directly reflected in an increased attendance noticeable throughout the entire year.

North Hudson Auxiliary Gives Christmas Party

The Women's Auxiliary of the Master Plumbers' Association of North Hudson, N. J., held its seventh annual Christmas party December 27 in the Banquet Hall of the Capitol Restaurant, Union City, N. J.

Chicago Steamfitters' Auxiliary Plans New Year's Party

The Women's Auxiliary to the Chicago Master Steamfitters' Association held a guest party this month. Members were permitted to bring guests for the day, and about sixty-five persons were present at the luncheon. The regular business meeting was held and a committee appointed to take charge of the New Year's party which will be held on or about January 12. This affair may take the form of a theater party and luncheon. Cards were played after the meeting and a pleasant afternoon was enjoyed by all.

District of Columbia Auxiliary Holds Party

The members of the Woman's Auxiliary of the District of Columbia were guests of one of the members at a card party held on December 5. Plans to help a needy family

Top row: Mrs. Guy Stocking, president; Mrs. C. Cooper and Mrs. E. B. Clayton, treasurer, all of Denver, Colo., auxiliary. Bottom row: Mrs. Robert Demmer, Mrs. V. A. Kiser, vice president; Mrs. R. A. Hurley, corresponding secretary; Mrs. F. X. Bordeau, secretary, all of Denver auxiliary. Photos taken at the convention of the Colorado Society of Sanitary and Heating Engineers

for Christmas were made, and the auxiliary also offered help to one other family.

This auxiliary was first organized in April, 1929, with a membership of twenty-two. At the present time there are forty-five members. It is interesting to note that about three days before each meeting the secretary sends a card giving the date, hour and place to each member on the prospect list, and in this way the membership has increased considerably.

The members of the auxiliary, together with the master plumbers, spent a very enjoyable evening on November 5. A hallowe'en party was held with spooks, witches, noise-makers, plenty of songs and all those things that make for a successful evening. Dancing was in order until all indulged in a delicious chicken salad, rolls, coffee and home-made pumpkin pie. All of this expense was borne by voluntary contributions from members of the auxiliary, and with money derived from the sale of articles at the party.

Detroit Auxiliary Entertains Santa Claus

The Christmas tree party for the children of the members of the Women's Auxiliary of Detroit, Mich., was given on Tuesday, December 17. It was a very delightful affair. The committee for the occasion was Mrs. Emily Zeigler, chairman; Mrs. Beth Collard, who took full charge of the dinner; Mrs. Maud Strachan and Mrs. Z. Kanach, who had charge of the decorations, dining room and music. The fathers all were in attendance about 6 p. m. and waited on the children, who had a long table to themselves. The dinner left nothing to be desired, and it was greatly enjoyed by all. The young folks went into raptures over the lovely little favors provided for them. After dinner, J. Nawrot very kindly showed some moving pictures, some of which were of members and their families. These pictures had been taken while the members were frolicking out at a summer cottage at the lake. The pictures were very amusing and brought peals of laughter from every one. Then came a musical march by the children and the arrival of Father Christmas, impersonated by Don Zeigler, who came in with his bells ringing and a big pack on his back, and distributed presents and boxes of candy to all. The young ones were soon busy with the toys, spinning their tops and running the trains and automobiles which Santa had brought. This was followed by music, Mrs. Kanach playing and leading the singing of Christmas carols, in which everyone joined. Altogether the party was a great success. The older ones, as well as the children, enjoyed every minute and thought it was all worth while. The only thing which was not just right was the weather, as a pouring rain prevented several who lived at some distance from attending. Nevertheless there was a good attendance, and all those who were there were sorry that anyone should have been prevented from enjoying the good time which had been prepared. All are looking forward to next year's party.

The Detroit auxiliary held its annual business meeting and election of officers on December 3. Mrs. Hazel Nawrot was re-elected president. Other officers chosen were: Mrs. Carrie Cain, first vice president; Mrs. Maud Strachan, second vice president; Mrs. Zell Kanach, third vice president. Mrs. M. M. Snyder was re-elected treasurer. Mrs. Edith Ellis was chosen recording secretary, to take the place of Mrs. Beth Collard, who has faithfully served in that capacity for three years. Mrs. Nellie Hughes was again re-elected to the office of corresponding secretary, and Mrs. Ida Meiers to that of sergeant-at-arms. No further meetings will be held until the new year, when it is hoped to hold a meeting on January 7.

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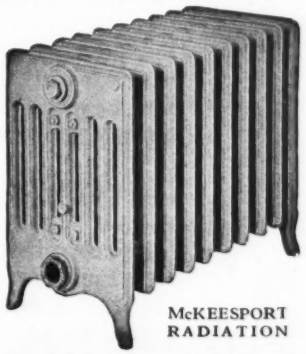
More and more, the tendency is toward something not only highly efficient in heating, but pleasing to the eye as well. McKeesport Radiators accomplish both of these points to greatest satisfaction.



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THE COLUMBIA RADIATOR COMPANY
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DART UNIONS

Double wear from Dart Unions. That is the big reason you should use them on every job. They have TWO BRONZE SEATS properly ground so as to be absolutely leakproof.

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CREST

Almost 100% Profit in CREST DE-ODO

And it has proved to be one of the fastest selling items of its kind.

De-odo is a new idea in bathroom sanitation—a pleasantly scented cleansing agent in cake form. Dropped into the flush tank, it cleans and deodorizes toilet bowls right down to the unhealthful trap.

We have an attractive De-odo folder for dealer distribution that will help you get your share of this profit. Shall we send you a supply?

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Insure

against expense, trouble and repairs the drains that carry corrosive wastes by using acid-proof Duriron.

Duriron is no more attacked by chemicals than other pipe is by pure water.

Duriron piping is installed the same and as easily as x.h. cast iron soil pipe.

Duriron is guaranteed and does not need the guarantee; its first cost is the last.

And the profit on Duriron is greater for the Plumber.

Complete stocks always.

The Duriron Company, Dayton, Ohio

DURIRON
FOR ACID SERVICE

Business Changes

Seattle, Wash.—The University Plumbing & Heating Co. has increased its capital stock to $100,000.

Willits, Calif.—E. B. Johnson has purchased the plumbing and heating and hardware business of the Willits Mercantile Co.

Rockville, Ind.—Paul Hobson has acquired the plumbing establishment of R. C. Shirar housed in the Rockville Implement company building.

Canyon City, Ore.—Walter Rinehart, contractor and builder, has added a plumbing and heating department to his business.

Scarsdale, N. Y.—Curran & Curran have moved their plumbing and heating business from 844 Scarsdale avenue to their new shop and showroom at 35 Harwood court.

New Business Ventures

Des Moines, Iowa—The Landis Plumbing Co. has been organized and established for business at 709 West Grand avenue.

Portland, Ore.—The Beaumont Plumbing Shop has been organized by William M. Ert and M. P. Ert, to engage in the plumbing and heating business at 1267 Fremont street.

Astoria, Ore.—W. C. Laws & Co. has been organized to engage in the plumbing and heating business, by W. C. Laws.

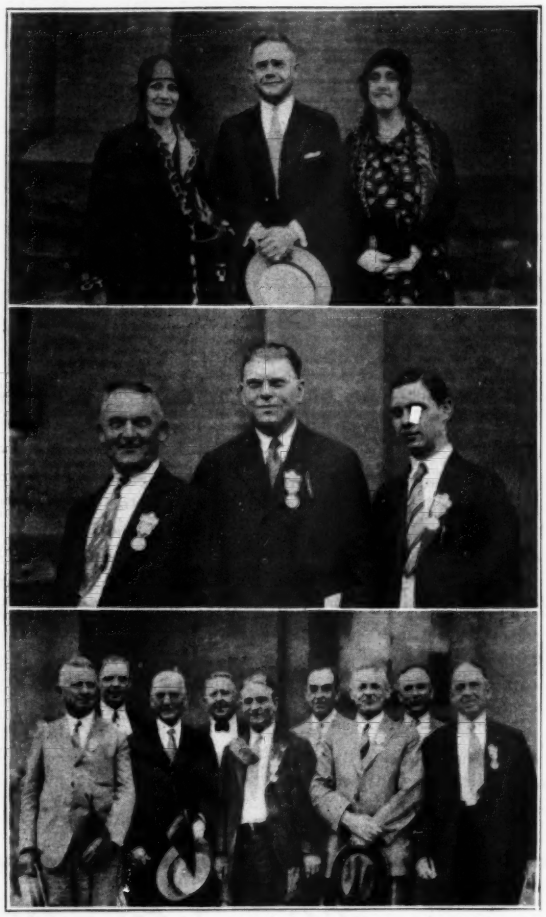
Venice, Calif.—The Community Plumbing Service has been organized by Walter E. Wilmot, Manual Duron and William V. Hensley, to engage in the plumbing and heating business.

Palmyra, Wis.—J. W. McWilliams, formerly of Egan, S. D., is completing plans to open a hardware and plumbing and heating establishment.

Portland, Ore.—W. E. Melior has engaged in the plumbing and heating business at 1833 Sandy boulevard, under the name of Associated Plumbing & Heating Co.

New Orleans, La.—Kern Brothers, Inc., has been chartered to engage in the plumbing and heating business.

Joseph Wittig of Milwaukee, George F. Reeke of Green Bay and Joseph Brah of Milwaukee, three well known Wisconsin master plumbers



Top row: Mrs. T. J. Foley of Buffalo; H. S. Maddock, Thomas Maddock's Sons Co., Trenton; Mrs. R. H. Dellwardt of Buffalo. Middle row: H. J. Welsh, J. I. Zimmer and H. E. Moran, all of the Ohio State Supply Co., Youngstown, Ohio. Bottom row: A Cincinnati group. Photos taken at the Buffalo convention of the N. A. M. P.

with a capital stock of $20,000, by Marcus Kern, 1820 Barronne street, and associates.

New York, N. Y.—A. Haftel and associates have organized and incorporated the firm of A. Haftel, Inc., with a capital of $3,000. It is planned to establish and operate a plumbing contracting business. S. Klein, 217 Broadway, represents the new concern.

Long Beach, L. I.—The Donovan Plumbing and Heating Co. has been organized and incorporated by A. I. Donovan and associates, with a nominal capital of 100 shares of no par common stock, to establish and operate a plumbing and heating contracting business. T. A. Kane, 140 Nassau street, New York City, represents the new firm.

Litchfield, Minn.—Otto H. Werner has opened a plumbing establishment in the rear of the Houd Hardware Co.'s store.

Fernandina, Fla.—The Sanitary Plumbing Shop, established by R. D. Blankenship, has opened for business at 25 North Second street.

Brooklyn, N. Y.—The Ralph Plumbing and Heating Co. has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing and heating contracting business. The new firm is represented by M. M. Helfgott, 25 West Forty-third street, New York City.

Des Moines, Iowa—The Grant Park Plumbing Co. has

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AUTOMATIC PRESSURE REGULATOR with STRAINER

This Type WATTS Automatic Pressure Regulator with Strainer is positive protection against excessive water pressures from the supply mains.
It will effect a savings in water as well as protect the system from damage.
Write for complete details and catalog.
An all-bronze outfit at an attractive price.

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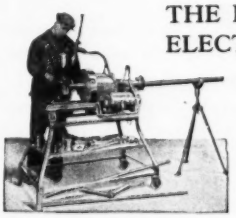

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the STEEL BOILER
with fast pick-up

insures the owner QUICK HEAT when heat is needed, and LOW FUEL BILLS, and makes him the Heating Contractor's permanent friend.

The catalog tells why. Write for a copy.

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McQUAY *Cabinet* RADIATOR

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Truly decorative—and more efficient. It saves walls and drapes by sending the heated air out into rooms, instead of up against the walls.

A humidifying pan (inside the cabinet) provides the moisture needed for healthy heating.

In sizes for any room—
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engaged in the plumbing and heating business at 264 East 26th street.

New York, N. Y.—The Roosevelt Plumbing and Heating Co. has been organized and incorporated with a capital of $10,000, to establish and operate a plumbing and heating contracting business. Representing the new firm is L. E. Greenberg, 132 Nassau street.

Newton, N. J.—Straulino and Wright, Inc., has been chartered with a capital of $25,000, to engage in the plumbing contracting business. Ackerman J. Mackerley, local attorney, represents the new concern.

Racine, Wis.—The Midwest Piping Corp. has been organized by P. Peterson, J. Peterson, A. Blom, M. Anderson and J. S. Martin. The concern will operate a plumbing and heating contracting business. It is capitalized with 250 shares at $100 each.

Anderson, Ind.—The Heating Equipment Co., Inc., has been organized and incorporated, with a capital stock of 100 shares, having a par value of $100 per share, to engage in the heating contracting business.

Derby, Conn.—A. Coppola, Inc., has been granted a state charter to engage in the plumbing and heating business with a capital of $50,000. The incorporators are Adam Coppola, 115 Hawkins street; Theresa Coppola and Pasquale Gaudio, 112 Hawkins street, all of Derby.

Jamaica, Long Island.—The Warranty Plumbing and Heating Maintenance Corp. has been organized and incorporated, with a capital of $20,000, to establish and operate a plumbing and heating contracting business. Brownstein and Brownstein, local attorneys, represent the new concern.

New York, N. Y.—The Greenbow Plumbers, Inc., has been organized and incorporated, with a capital of $5,000, by A. L. and R. M. Greenbow. The new concern will establish and operate a plumbing contracting business in the Bronx. J. H. Katz, 391 East One Hundred Forty-ninth street, represents the company.

Left to right: Joseph Hirshstein, president of Josam Mfg. Co.; Mrs. Joseph Hirshstein; J. C. Still, plumbing and building inspector of Durham, N. C.; Mrs. J. C. Still

Jamestown, N. Y.—George L. Shutt, who has been engaged in the plumbing and heating business at 3 West Fourth street, for several years, has moved into larger and more commodious quarters at 613 North Main street.

Mount Vernon, N. Y.—The Plumbing and Heating Engineers Co. has been organized and incorporated with a capital of $5,000 to establish a plumbing, heating and ventilating engineering and contracting business. Herman Bert, 110 William street, New York City, represents the new concern.

MINERAL FELT "Steel Clad"
PIPE COVERING

The only insulation that resists Heat, Wear and Water

By every test Mineral Felt Covering has proven itself the most effective insulation known. Mineral Felt in blocks, bulk, or shapes, is six times as efficient as asbestos, and twice as efficient as magnesia. Imagine the beauty and efficiency of a job finished in Mineral Felt—a pliable 1-inch layer of this remarkable insulator, covered and protected with a smooth steel jacket that can be snapped on or off a pipe at will. It is equally effective on hot or cold work, and makes good under the most trying conditions on either outside or inside work.

An Opportunity for Live Dealers

Mineral Felt opens a new world of opportunity for plumbing and heating engineers. The facts, the fuel saving, the durability of Mineral Felt (either in blocks or pipe covering) are indisputable.

Home owners need Mineral Felt for heaters, tanks, and furnaces, for it shows fuel savings of 25 to 40 per cent.

Industry welcomes it for a thousand uses.

The Mineral Felt franchise is the biggest money making opportunity in the field. Full description, data, and proposition on request.

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New Trade Literature

Cochrane Corp.'s Bulletin

Cochrane Corp., of Philadelphia, Pa., has just issued a bulletin, No. 686, describing a combined deaerator and hot water generator for supplying hot, deaerated water to heating and hot water service systems. The bulletin describes how the deaerator removes dissolved oxygen from water, and tells how the water is heated, not by direct contact with the steam, but by means of heating coils, so that the steam used for heating is kept apart from the water being heated. The bulletin contains numerous illustrations, and diagrams showing hot water piping systems adapted for various types of buildings.

Bulletins of Fulton Sylphon Co.

The Fulton Sylphon Co., of Knoxville, Tenn., has just issued three bulletins on automatic temperature control, treating of the control of liquids, air, gases and vacuum.

Envelope Stuffers of Semler Co.

Semler Co., of Jeannette, Pa., is sending out four envelope stuffers printed in black and red. The first refers to the company's steam fittings, the second to drainage fittings, the third to flanged fittings and the fourth to sprinkler fittings. Each of the folders is illustrated.

Circular of Bell & Gossett Co.

Bell & Gossett Co., of Chicago, is sending out a circular describing its "double-duty" indirect water heater for oil or gas-fired hot water heating systems. A technical description is given of the working of this automatic water heating with room temperature control, in one unit. The circular also contains a series of "fourteen points about the heater." A cross section view in red and green illustrates the heater.

Circular of Austin Heat Transference Corp.

The Austin Heat Transference Corp., of Port Chester, N. Y., has issued a circular with the caption, "Opportunity, the Open Door to Success." The folder describes the concern's heat generator for use with oil or gas. Three illustrations show the generator. One of these views is of the generator open showing water base and coils without combustion chamber brick; a second view of the generator shows the coil removed, while a third shows the generator closed, ready to be connected.

New Book Published on Indirect Water Heating

"The Indirect Water Heater" by Elmer S. Stack recently has been published. It is a 171 page book 5½ inches by 7½ inches in size, bound with black flexible covers and is well illustrated with line drawings and half-tone plates. Altogether, there are fifty illustrations and eighteen tables.

The contents are divided into eight chapters beginning with a description of the development of the indirect method of water heating. Succeeding chapters, in turn, consider the construction and operation; the contrast to direct water heaters and coils; connection to heating appliances using coal; use with steam, oil and gas; determination of hot water demands, tank size and heater size; causes and remedies for unsatisfactory operation; and representative installations of indirect water heaters.

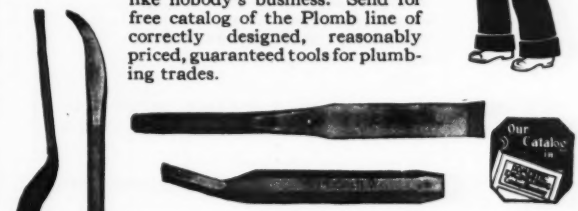
Mr. Stack is consulting engineer on hot water supply for Maine and Massachusetts State Associations of Master Plumbers.

"Fabrication of Welded Piping Designs"

"Fabrication of Welded Piping Designs" is the title of an eighty-six page booklet just published by Linde Air Products Co., of New York City. This publication is divided into three parts: Procedure Control, Templet Layout for Pipe Fittings and Tables for Estimating Costs.

Harder and Tougher Than a Miser's Heart

Treat 'em rough . . . they like it and come back for more. That's the kind of helpers Plomb Tools are. Hand-forged from finest steel . . . heat-treated so they're harder 'n tougher than a miser's heart . . . they hold an edge or a point like nobody's business. Send for free catalog of the Plomb line of correctly designed, reasonably priced, guaranteed tools for plumbing trades.



Tools shown are: Left: Gasket Calker, in four different lengths, from 6¼ to 10 inches; straight ground concave blade—Lead Pick, made right, left or straight. Above: Floor or Plumber's Chisel, comes many sizes, long thin blade is special heat-treated steel that will cut nails and knots. Below: Long Calker or Iron, comes all sizes, regular or narrow blade; finest heat-treated hand-forged steel. Send for complete catalog.

Ask Your Jobber's Salesman for

PLOMB TOOLS

HAND-FORGED

PLOMB TOOL CO., 2209 Santa Fe Ave., LOS ANGELES
NEW YORK: 47 63rd St. CHICAGO: 1146 W. Lake St.

Hinges of the Better Kind

Hinge No. 100—Close-Ruf

GRAND HAVEN BRASS FOUNDRY
Grand Haven, Michigan

Hinges for all types of toilet seats

All hinges can be furnished Crodon Plated if so desired.

Pipe Joint Cement
"AMERICAN SEAL"
Dry and Plastic **Gray and Graphite**

Put an end to "Leaky" joints. Use "American Seal" Pipe Joint Cement the cement which is noted for its lasting qualities and which makes joints proof against leakage for all time.

THE WILLIAM CONNORS PAINT MFG. CO.
TROY . . . NEW YORK

Now! only **$70** Cash, F.O.B. Factory For 210-gallon-per-hour size Complete with motor for 60 cycle or direct current

Profit by this outstanding value in Home Water Systems

AT $70, this New Type complete 210-gallon-per-hour Fairbanks-Morse Home Water System is unmistakably the greatest value ever offered.

It is automatic with all working parts enclosed in a handsome lacquered casing. This tremendous value, made possible by Fairbanks-Morse quantity production and world-wide distribution, will mean extra profits for the dealers that handle them.

Write now for complete information before someone else in your territory gets the franchise. Address Dept. I-12.

FAIRBANKS, MORSE & CO., 900 S. Wabash Ave., Chicago

FAIRBANKS-MORSE Home Water Systems

IMPROVED "WILHELMI" BOILERS

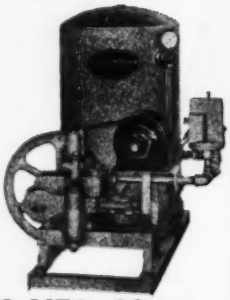
A special process for re-enforcing the top and bottom of Improved "Wilhelmi" Copper Range Boilers assures unusual strength and insurance against breakage under heavy strain.

Write for complete details.

HAYES MFG. COMPANY, Makers
Paterson - - New Jersey

THE HOOSIER

Means Perfect Water Service



Hoosier installation means perfect service for years with a minimum of attention. Pure, bountiful, running water for every purpose. Motor is silent and never heats up under a load. Extremely quiet operation throughout. The famous GalVAZink coating protects the entire outfit from rust, corrosion, and chemical action. Pump so constructed as to preclude any possibility of oil getting into water supply. Many other Hoosier features.

FLINT AND WALLING MFG. CO.
76 Oak Street - - - - KENDALLVILLE, IND.

Part One gives information as to the procedure control for oxy-acetylene welding line joints in steel or wrought iron pipe, and for the fabrication of oxwelded pipe fittings. It also has a section devoted to "Practical Hints" on radial cutting, fabrication of a header, straightening operations, etc. The second part of the pamphlet gives the procedure for laying out templets of various kinds, and also contains numerous tables for pipe cutting templet dimensions. The last part contains tables of materials and labor required for pipe cutting.

Bulletin of the Mercoid Corp.

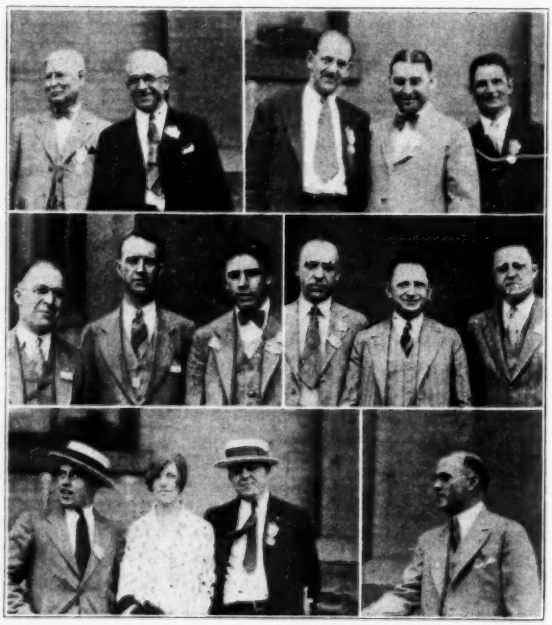
The Mercoid Corp., of Chicago, is sending out its Bulletin S-89, describing its adjustable type valve for oil, gas, water, air, etc. Sectional and rear views of the valve are given, as well as typical wiring diagrams. Various controls, such as a thermostat, pyratherm, boiler control, low water and pressure control, etc., are also described.

Borden Co.'s Circular

Bulletin "G" has just been issued by The Borden Co., of Warren, Ohio. The bulletin describes the company's tools for grooving the end of pipe, ½-inch to 16-inch. A series of illustrations shows the placing of the tool in position, centering and locking, etc. A power drive, square-end pipe cutters and geared pipe threaders are also illustrated.

Gorton Heating Co.'s Circular

The Gorton Heating Co., New York City, has prepared for distribution a circular presenting its new air valve designed to equalize steam heating systems, particularly in connection with thermostatic control and oil burners. The circular also sets forth the specifications of the device.



Top row: B. Jos. O'Donnell, formerly of the Plumbing and Heating Industries Bureau, Chicago; William H. Kessel of W. A. Case & Son Mfg. Co., Buffalo, N. Y.; N. Feinberg, F. H. Schuth and G. W. Pappert, all of Rochester, N. Y. Middle row: C. R. Kingsbury of Dalquist Sales Corp., Philadelphia, Pa.; J. J. Mahoney of Whitehead Metal Products Co., New York City; K. A. Radcliffe of Dalquist Sales Corp., New York City; M. C. Reich of Weil-McLain Co., Chicago; A. D. Weinberg of Chicago; F. T. Crow of Johns-Manville Corp., New York City. Bottom row: W. D. Martin, Jr. of American Brass Co., Waterbury, Conn.; Miss Florence Manley of Cincinnati, Ohio; R. H. Fuchs of Belknap Hardware & Mfg. Co., Louisville, Ky.; P. L. Sowersby, manager Crane Co., Cleveland, Ohio. Photos taken at Buffalo convention, N. A. M. P.

Pipelines Connected by LYT

There are, apparently, adventures to be had in the plumbing and heating business. G. M. C., of Newark, N. J., sends in the following story:

It seems that G. M. C., and his helper, Scotty Bill, had a call to make. They climbed into their Ford and on the way two motorcycle policemen draw up with them.

"Where are you birds going? You look like a couple of bootleggers."

The rear of the car is opened up and the officers invited to investigate. Naturally, they found no incriminating evidence. O. K.'d by the police, they went on their way.

At the house from which the call for service came, they found a lead water pipe leaking back of the kitchen sink. The lady of the house was asked to indicate the way to the basement.

"Oh, boys," she said, "don't go down there. Grandpa is working in his secret room."

The boys indicated the necessity for shutting off the water and while the discussion was going on a tremendous explosion was heard in the cellar.

"Oh, plumbers," cried the lady, "go into the basement and see if grandpop is hurt."

G. M. C. and Scotty Bill raced into the basement. Everything was wrecked.

"Oh, plumbers," cried the lady, "How is grandpop?"

"Wait till we get him out of the wreck," is the reply.

In due time Grandpop was extracted, his face, arms, legs and body all cut up. The police arrived, made an investigation, and found that Grandpop was a prospect for Uncle Sam's attention.

The moral G. M. C. extracts from Grandpop's explosion is: "It doesn't pay to advertise unless you have a clear idea of life and laws."

THINGS AREN'T AS BAD AS THEY SEEM

Whatever else may happen,
Now that the country's dry,
The sailor he will have his port,
The farmer have his rye;
The cotton still has got its gin,
The seacoast has its bar,
And each of us will have a bier,
No matter who we are.

G. E. N., Rochester, N. Y.

YOTO APPLIES FOR A JOB

"Dear Sirs:

I am Wang. I can drive a typewriter with good noise and my English is great. . . . My last job has left itself from me, for the good reason that the large man has dead. It was of no fault of mine. So, honorable sirs, what about it? If I can be of big use to you, I will arrive on some date that you should guess."

LONDON DAILY EXPRESS.

Before a man is married, remarks the editor of "Typing Tips" he yearns for a woman. After marriage the "y" is silent.

"SY" SEZ

The other thing the stork is noted for is his long bill.

"Go," said the irate landlady, "and never darken my bathtub again."

A smile is often worth much more than its face value.

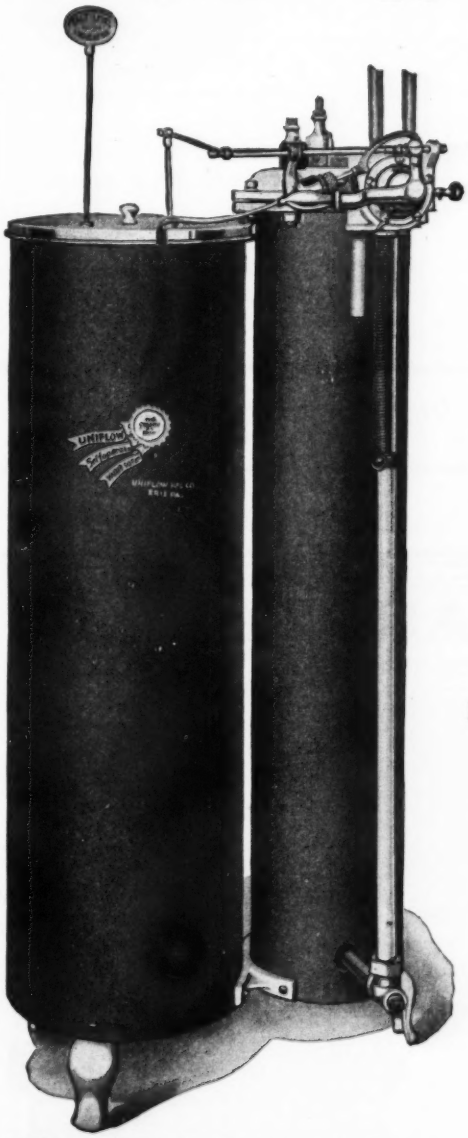
The best reducing exercise consists in moving the head from left to right when asked to have some more.

"SY" MARTIN, Owensboro, Ky.

Hockey, in which the country is taking so much interest, is merely a legalized use of the good old shillalah.

L Y T

Ten Year Guarantee
— TO THE USER
Write for Copy of It



Reconditions Itself When You Want It To

Porcelain Enameled Tanks, Chromium Plated Fittings

Cost Is Little More Than The Ordinary Softener

Made In Several Sizes

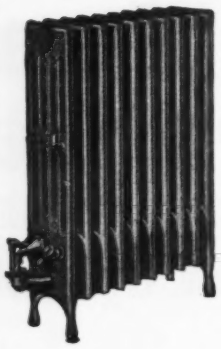
Self Operating Water Softener

Durable — Dependable — Beautiful

Write for Literature and Prices.

UNIFLOW MFG. CO.

ERIE, PA.



For those Emergency Heat Needs

There's never a winter goes by but every home in your community needs emergency heat.

For sick rooms, nurseries, bathrooms or for supplementary heat anywhere in the house, the Automatic Gas-Steam Radiator is the thing.

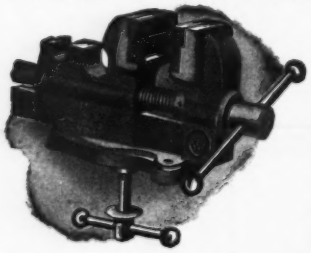
Sell Automatic Gas-Steam Radiators and make the winter season pay big! Ask your jobber or write us direct.

Automatic Gas-Steam Radiator Co.
PITTSBURGH PENNSYLVANIA

TESTING LABORATORY AGA APPROVED

VANDERMAN

Combination Bench Pipe Vises and Steel Tool Chests



Equipped with removable jaws, the Vanderman Pipe Vise will handle all work from ⅛ to 10 inches. Vanderman quality in vises, benders and cutters assure quickest and best work.

Keep your tools in a Vanderman Steel Tool Chest. Reinforced malleable corners and selected hardwood braces. In a variety of sizes or made to your specifications. Write for particulars.

THE VANDERMAN MFG. COMPANY
Willimantic Connecticut

Bath a Day Movement

Probably no other industry has ever had the advantage of a publicity plan so effective as the Bath a Day Campaign. This much has been acknowledged by authorities in the business paper field. The Campaign, as planned and fostered by DOMESTIC ENGINEERING, *has offered plumbing contractors a unique and powerful method of securing favorable publicity and of calling the public attention to matters of sanitation. Alert master plumbers and aggressive associations have made use of the Bath a Day materials to good purpose in an educational way. They have proved its effectiveness—and the movement still stands as a splendid piece of constructive planning.*

171

In the years during which the campaign has been in existence, the materials produced have been widely used. Those materials consist of the small sticker for use on envelopes, letterheads, statements, etc., the window transfer, the big poster, the newspaper cuts carrying the slogan, "A Bath A Day Keeps You Fit Every Way," and—"The Story of the Bath," one of the most successful booklets ever printed.

The big figure at the head of this column, 171, represents the number of cities and towns in the United States where "The Story of the Bath" has been placed in the schools as class reading material. There are other cities, of course, where this has been done—but we give the number only of those where we know positively that the booklet has gone into the schools. This has been the most important use of "The Story of the Bath."

Epigrams—For Your Use

Poverty is not a crime, but the penalty is hard labor, just the same.

* * *

A woman forgets she has a headache when she is wearing a new hat.

* * *

Many a worthless man marries a woman who is worth more.

* * *

Borrowed money soon begins to look like borrowed trouble.

* * *

If you would like to flatter a married man tell him he doesn't look it.

* * *

Many a good name has been given the tar-and-feather degree by idle gossip.

* * *

Lots of married men are glad that they at least have the privilege of thinking as they please.

* * *

A new broom and a straight flush sweep clean.

* * *

A miss is better than a mile—of old bachelors.

* * *

Lives of great men all remind us of how easy it is to be a small man.

* * *

A man isn't necessarily well bred because he has the dough.

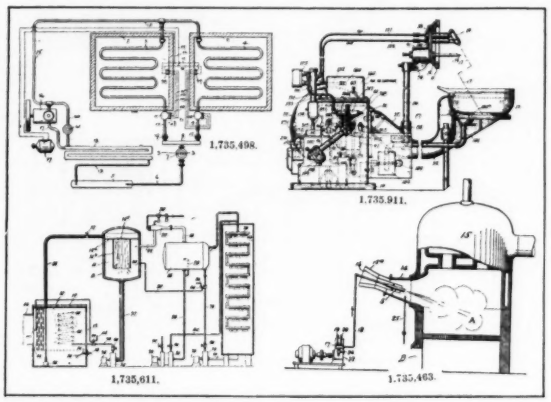
* * *

The sea of matrimony swamps many a courtship.

PATENTS

Heating Department

1,735,911. Automatic Oil Burner. Gustaf David Sundstrand, Rockford, Ill., assignor to Sundstrand Engineering Company, Rockford, Ill., a Corporation of Illinois.



1,735,498. Refrigerating Apparatus. Joseph M. Etienne, San Francisco, Calif.

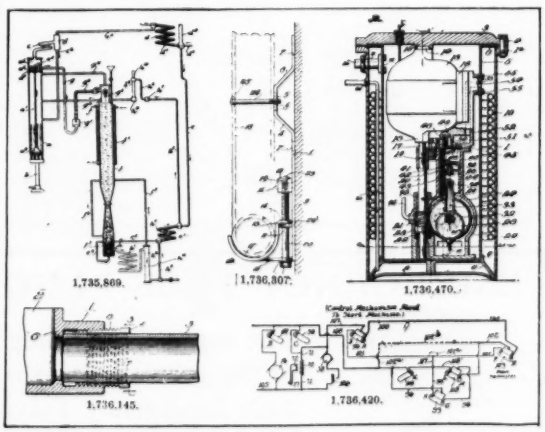
1,735,611. Apparatus for Conditioning Air. Louis Helmer, New York, N. Y.

1,735,463. Oil-Burning Apparatus. William G. Johnston, Philadelphia, Pa., assignor to Charles B. Downs, Philadelphia, Pa.

1,736,145. Fastening for Threadless Pipes. Ernst G. K. Anderson, Evanston, Ill., assignor to Appleton Electric Company, a Corporation of Illinois.

1,736,307. Adjustable Wall-Radiator Support. Anthony E. Davis, Philadelphia, Pa.

1,736,420. Oil Burner and Control Therefor. Gustaf David Sundstrand, Rockford, Ill., assignor, by mesne assignments, to Sundstrand Engineering Company, Rockford, Ill., a Corporation of Illinois.



1,736,470. Refrigerating Apparatus. Lucien L. Torrey, Los Angeles, Calif.

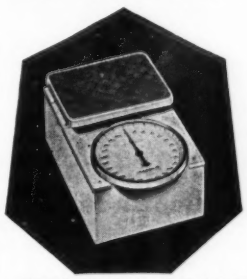
1,735,869. Refrigeration. Donald B. Knight, Brooklyn, N. Y.

1,736,491. Automatic Control Device for Heat-Transfer Systems. Vernon G. Eisel, Baltimore, Md.

1,736,635. Refrigerating Machine. Christian Steenstrup, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York.

In colors to harmonize

with modern bath rooms



HANSON

WEIGH MASTER

BATH ROOM SCALES

You always make more money on Hanson Scales. Send for literature.

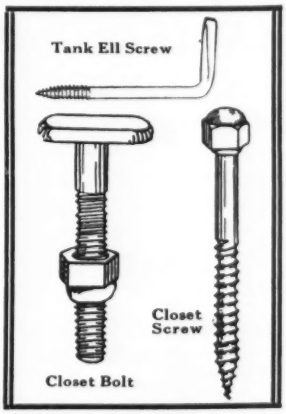
HANSON SCALE COMPANY, 546 N. Ada St. Chicago

Every Day Needs

Keep your supply of Hindley's specialties up. They're easy to buy in convenient form for stocking and handling. From your jobber.

Hindley Mfg. Co.

Valley Falls : Rhode Island



GENUINE NASON STEAM TRAPS

UPKEEP

KEEP DOWN

NASON

NASON MANUFACTURING CO.

71-FULTON ST. NEW YORK NY.

Steam Specialty Specialists Since 1841

Telephone: Lawndale 1850-1851

Ingot Brass

Smelters and Refiners

High Quality Metals

Metals made up to specifications.

R. LAVIN & SONS

2511-2525 W. 21st St.

John Hartman, Sales Mgr. **Chicago, Ill.**

For All Lead Work

If you're one of the few who haven't used Yager's Soldering Salts, order some from your jobber now or write Dept. "D" for sample.

Excellent for all lead work. Easy to handle anywhere.

YAGER'S SOLDERING SALTS

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For list of distributors see 1929 McRae Blue Book
Sales Agency for Canada:
Canadian General Electric Co., Ltd., Toronto and Montreal

COMET GAS RADIATORS

There are many opportunities about you for Comet Sales. Schools, clubs, restaurants and homes, all can use and need Comet Radiators.

Complete information upon request

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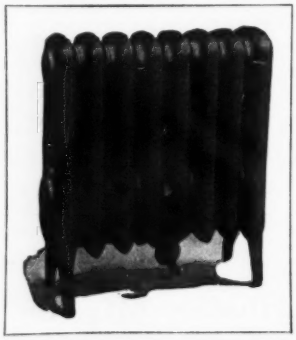


Bull's HEAT Eye
WATER HEATER

For Kerosene

The "BULL'S ⊙ EYE" Kerosene Water Heater has the same principle as the "BULL'S ⊙ EYE" Gas Heater —eliminates pencil-like coils—has large free passageways—lasts from 4 to 6 times as long as old-style coil heaters.

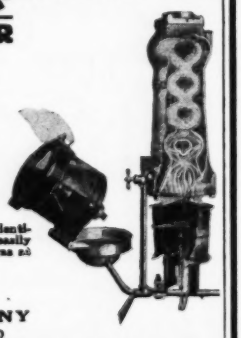
The burner is a Giant Wick Burner—heating 50% faster than the standard single burner.

Except for burners, the two heaters are identically the same. The Kerosene heater can easily be converted for use with public service gas at a cost of a few dollars.

Price, $30.00 plus installation.

Order from your jobber

THE DUNHAM COMPANY
BEREA (*Suburb of Cleveland*) OHIO



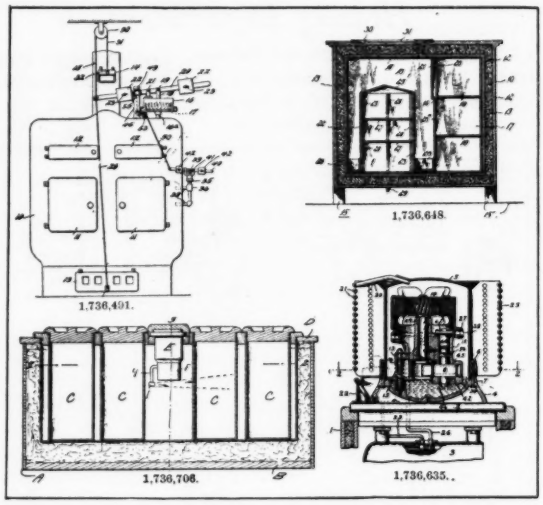
YOU'RE looking for greater profits and new customers. Let GORTON tell you how you can make both with the GORTON Single Pipe Vapor Heating System.

Ask for Catalog No. 94.
Write today.

GORTON HEATING CORPORATION
Manufacturers—Established 1887
96 Liberty St., New York City

GORTON SINGLE PIPE VAPOR HEATING SYSTEM

1,736,648. Refrigerating Plant. Belonie Clavette, Edmundston, New Brunswick, Canada.

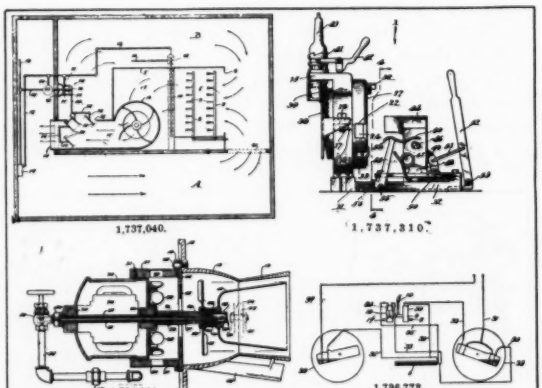


1,736,706. Refrigerating System. Albert Jones, Baltimore, Md., assignor to himself, Maurice K. Heartfield, Washington, D. C., and James M. Decker, Baltimore.

1,736,773. Refrigerating System. Max Alex, Davenport, Iowa.

1,736,990. Oil Burner. Le Roy Wilcox, Detroit, Mich., assignor to Cope-Swift Company, Inc., a Corporation of Michigan.

1,737,040. Air-Conditioning System. Claude A. Bulkeley and Lachlan W. Childs, Buffalo, N. Y., assignors to



EMERGENCY TUBE PLUG

The tapered threading of the Johnson-Washburn Emergency Tube Plug assures a tight repair.

Easy to install, too.

From Your Jobber

JOHNSON-WASHBURN CO.
91 Haverhill St., Boston, Mass.

Niagara Blower Company, Buffalo, N. Y., a Corporation of New York.

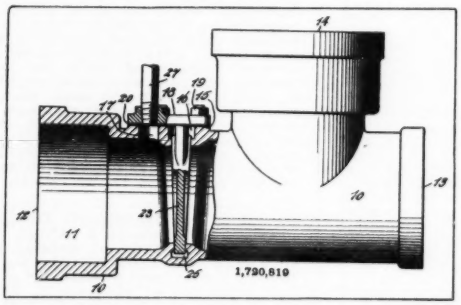
1,737,310. Threading Machine. William L. Howlett, Los Angeles, Calif.

1,735,402. Boiler Compound. William L. Kniesel, San Diego, Calif. A boiler compound comprising silicate of soda, twelve hundred pounds; caustic soda, one hundred twenty pounds; extract of hemlock containing tannic acid, ten pounds; gum catechu, ten pounds; and sorghum molasses, twelve pounds.

1,736,800. Composition for Removing Boiler Scale. Hans Rathje, Buffalo, N. Y. A compound composed of the following ingredients in substantially the proportions stated and brought into solution by the application of heat, to-wit: 250 pounds potatoes, 125 pounds cabbage, 75 pounds carrots, 50 pounds turnips, 25 pounds celery, 125 pounds caustic soda (76 per cent), 17 pounds kerosene, 1 pound graphite, and enough water to make up 1,000 pounds.

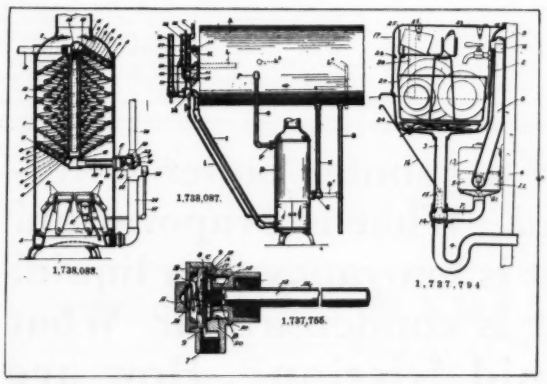
Plumbing Department

1,720,819. Test T. Frank Cohen, Brooklyn, N. Y.



1,738,087. Water-Heater Construction. Frank L. O. Wadsworth, Pittsburgh, Pa.

1,738,088. Water Heater. Frank L. O. Wadsworth, Pittsburgh, Pa.



1,737,755. Thermostatic Valve. Paul H. Hamilton, Cleveland, Ohio, assignor to The Sands Manufacturing Company, Cleveland, Ohio, a Corporation.

1,737,794. Dishwashing Machine. Nelson H. Henderson, Syracuse, N. Y., assignor to Syracuse Industrial Gas Company, Syracuse, N. Y., a Corporation of New York.

◆

Brooklyn, N. Y.—The K. and C. Plumbing and Heating Corp. has been organized and incorporated, with a capital of $20,000, to establish and operate a plumbing and heating contracting business. D. S. Hart, 32 Court street, represents the new firm.

1873
NEW in construction & furnishings
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1930
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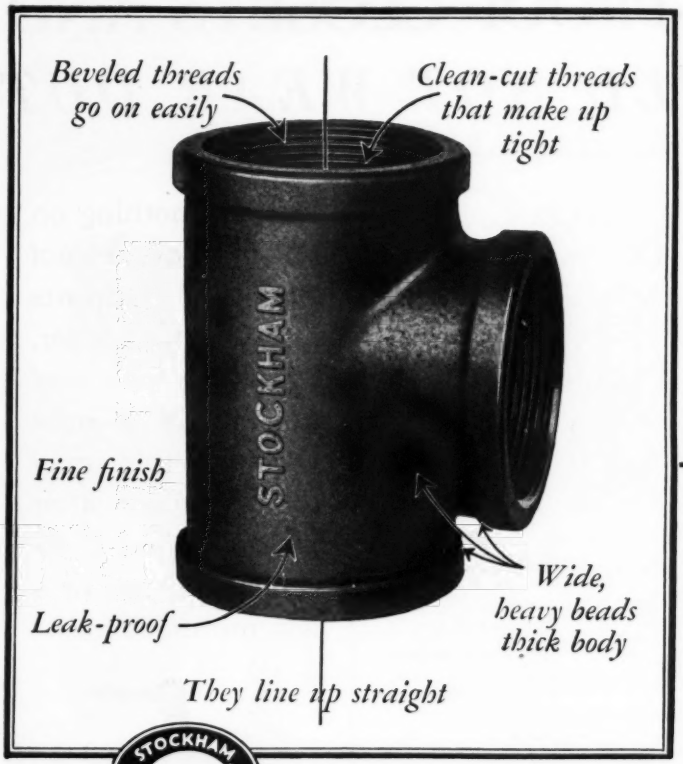

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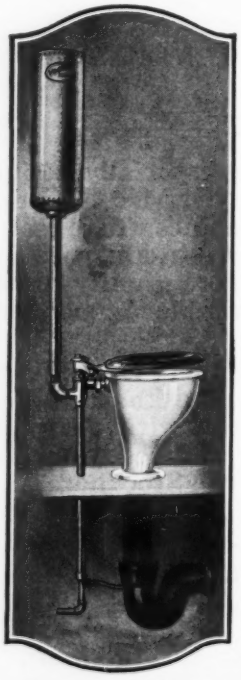

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